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PSYCHOSOMATIC MEDICINE

EXPERIMENTAL AND CLINICAL STUDIES



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SOME SPECIAL ASPECTS OF PSYCHOTHERAPY IN THE ARMY AIR FORCES*

LIEUT. COLONEL JOHN M. MURRAY, M.C., A.U.S.†

The war is opening new vistas to psychiatry and new possibilities for the investigation and understanding of pertinent problems. New opportunities for the short term treatment of neuroses activated by reactions to battle create most advantageous situations for understanding and clarifying old confusing problems. The neuroses arising in war, although perhaps fundamentally the same as civilian neuroses, have somewhat different colorations, dependent upon the special precipitating situation or situations. The short span of time in which individuals go from health to neurosis and back to a reasonably healthy state again is completely foreign to civilian experience. In the evaluation of these conditions, there are always two considerations—both old acquaintances of long standing to all psychiatrists—the internal conflicts and tensions present in the individual's unconscious emotional life and the powerful external forces which play upon them in the battle situation. Some men break with a minimum of trauma while others who have a severe pre-existing neurosis never openly crack though earlier predictions might have said they would be the first to do so. Army life and combat seem to fulfill important emotional needs and thereby to stabilize these individuals. Other men, who would never have been picked out as "stout fellows," seem to tolerate almost overwhelming situations and come through with flying colors. Still others, who are obviously outstanding as rugged Army men and who have behind them years of Army training and experience, break at unpredictable times. All of which simply goes to prove that ordinary rule of thumb standards for predicting tolerance for emotional stresses are very "hit and miss" answers. One has to know more of an individual's inner life, his needs and his phantasies, his anxieties and their qualities and intensities, and what special situations induce or relieve them. Unfortunately up to this time, because of the pressure of war needs, little opportunity has been given for the close study or even individual scrutiny of these deeper factors at play in this new and special situation.

* Read before the meeting of the Brief Psychotherapy Council, Institute for Psychoanalysis, Chicago, January 14, 1944.

† Consultant in Neuropsychiatry, Office of the Air Surgeon.

In passing, another angle of great importance may be mentioned—the one dealing with prophylaxis. It has been seen over and over again that the quality of leadership is the most important single factor in the low incidence of neurotic breakdowns in any given unit. Definite observations show that in units where the leaders are strong few privates break down, and conversely, in those units that show breakdowns among the leaders, the incidence of breaks among the soldiers is relatively high.

These facts all raise interesting questions of the utmost importance in relating the status of the inner emotional life to the outer stresses which combine to produce the intolerable conflict and the subsequent anxiety reaction, which is the basis of symptom formation. A list of other important prophylactic devices might be examined, analyzed, and discussed, but this will not be done here as the purpose of this paper is to raise questions of broad import relating to inner defenses. The fate of these new defensive attitudes, which are primarily built as bulwarks against the difficulties and hazards of military life, is the primary concern. In the years after the war when they are no longer of value, the fate of these defenses will determine perhaps, in a large measure, the subsequent life stories of the individuals themselves. And further, the contributions which the psychiatrist will make to these men should be based upon a sound fundamental understanding of what the therapist is trying to achieve in supplying help for mastering his war precipitated neurosis. Therefore, it is of the utmost importance that we, as psychiatrists, wisely guide these men in their return to civilian life and provide scientific understanding in aiding them to accomplish the transition essential to successful living within the limits of ordinary cultural attitudes.

One is safe in saying that practically all men develop anxiety in the battle situation. The fact that a given person does not do so without the benefit of a period of actual battle conditioning perhaps indicates an underlying psychopathic state. This opinion is derived not only from a series of general observations of psychiatrists who have talked with those men with battle experience but also from formal reports from psychiatrists who have held specific interviews with a large num-

ber of air crew members having successfully completed their difficult tour of operational flying over Europe. A very large percentage of these men reported that on one or more occasions they had experienced severe subjective signs of anxiety related to their combat activities. It is interesting to note that in this group of successful bomber crews the anxiety comes at a time before or after the actual combat—that during the activities of the combat itself this did not happen. The most distressing period is after briefing, while waiting to take off on the mission.

This fact raises a number of important questions which we cannot answer fully at the moment without being largely speculative. If anxiety is so prevalent, what are the devices that give the individual mastery of it? Why does this mastery fail at times with some men? How important is the role played by the physical factors, such as exhaustion, hunger, excessive heat or cold, cramped quarters, and such? And very important and pertinent to this discussion is the question, what, if any, are the special regressive devices to which the individual retreats in order to find a better bulwark against his anxiety reactions? Lack of time and adequate data makes it impossible to attack all of these questions at the present moment. However, the factor of regression as a defense is most important and will be the special subject for consideration.

Recent reports submitted from theatres of operation show that there are definite character changes which take place in the members of air and combat crews in theatres of operation.¹ It is easy to label these as pathological, as indeed they would be in the ordinary cultural setting. But in war when danger is ever present, death always imminent while in flight, and the taboo of killing has been set aside so that this act is an expected daily activity, the whole circumstances of living are completely altered and a term or a cliché has nothing to add to the understanding of these reactions.

What have we been able to observe as definite character changes of this special order and particularly those of a regressive nature? One hears commonly among Flight Surgeons who have seen service in operational theatres the observation as to how quickly air crew members mature in combat areas. The statement is usually as follows: They come in here as happy young lads but in a short space of time, they change to mature and grim men with lines on their faces expressing a fundamental

change within. This in itself, of course, is not a regressive phenomenon but, however, it is an important fact that a developmental process which should be accomplished gradually has taken place in all too short a period of time and under very distressing circumstances. As well as this there is a definite characterological change in a number of these individuals' attitudes which virtually may be called a regression to early adolescent aggressive reactions and their relations with their mates are often dominated by these attitudes. This phenomenon perhaps may be described most dramatically by saying that they have regressed to an attitude like that of the "Dead End Kids."

This reaction is pictured very clearly in a report from the Eighth Air Force in England submitted to the Air Surgeon's Office by Captain David G. Wright, psychiatrist, attached to that Air Force. In a survey carried out to determine the mental and emotional status of flyers who had successfully completed their prescribed tour of operational duty he found that more than 70 per cent of the successful combat men stated that they developed irritability and quick flaring anger at their crew mates in a way entirely foreign to their usual feelings and actions as their operational tours progressed. Appropriately, they stated that this occurred most frequently in periods of relative inactivity when there was little active outlet for their feelings. This anger at times flared into open quarrels and fights without personal hostility being involved, but simply as an outlet for pent up inner emotions which could find expression at the moment in this manner. On the other hand, these crews are very closely knit units, very dependent upon each other and intensely loyal—a total situation quite comparable to the "Dead End Kids" gang and their attitude. At times evidence of rather cruel and sadistic aggression is shown in the type of "kidding" they carry on, particularly with new replacements who join the unit and who, at first, are regarded as being outside of the group.

Captain Wright states "in a fairly large number of men (thirty-seven per cent) episodic depressions occur, frequently with major self-accusatory content (which may perhaps be validly considered "aggression turned against oneself"). This most frequently occurs near the end of a tour, when the flyer may feel, sometimes with justification, that his efficiency has fallen off somewhat and that he constitutes a danger to the rest of the crew and formation. Self-accusation is very frequent after outbursts of hair trigger irritability that have lashed one's crew-mates for inconsequential or non-existing mistakes."

Captain Wright's picture is a clear-cut description of regression to the level of adolescent aggres-

¹ Air crew consists of pilot, navigator and bombardier, while combat crew comprises the remainder of the crew of a bomber, including gunners, flight engineer, and radioman.

sive homosexuality to which the stresses of their routine daily life have driven these men. This protective mechanism is undoubtedly of great value to them and it would be a gross error to attempt in any way to disturb such a mechanism as long as they are living under the circumstances which produced it. Individuals so universally experiencing severe anxiety under such hazardous circumstances indeed do need defenses of this order to carry on their routine duties.

The later fate of the anxiety and of these defenses should be of great concern to psychiatrists. How much will this anxiety persist during life after the war in the normal cultural surroundings? How much will the regression persist? Upon what objects will the anxiety and the aggression be displaced if it is later neurotically maintained when the danger which originally precipitated the reaction has long since passed? How long will the character abnormalities persist? What will be the relationship between the individuals and the love objects of later life—their wives, and their children? Their social and occupational relationships probably also will be drawn into the pattern unless the regression is overcome and normal mature development ensues.

The mechanisms of condensation and displacement will be the important ones utilized by those with persistent neuroses in the handling of these inner tension states upon their return to civilian life. The tendency of powerful emotional conflicts to become displaced onto and grouped with other important emotional areas of the individual's life is a well-known phenomenon.

This occurs many times under circumstances in which the individual items which later are condensed into a single pattern have no other common denominator excepting the strength of the powerful emotional component occurring in each. Men returning with anxiety reactions related alone to battle situations will be entering into new important relationships which have a powerful emotional element in them. Marriage and parenthood are perhaps the most important ones, but social relationships and the attitude toward work and those with whom they establish relationships in this sphere are also important.

The ability to master the sexual taboos of childhood and to enter into a normal adult relationship with one's marital partner is one of the most important problems which men of this age group face in a peaceful civilization. These are most important developmental steps if one is to live in an atmosphere devoid of useless personal conflicts. Under optimum conditions, this is oftentimes a difficult transition to make—to grow away from adolescent restrictions to the privileges and responsibilities

of mature sexuality. A great number of men will be returning from overseas theatres desirous of taking this next step in their natural growth and development. A considerable percentage of these men will bring with them residual anxieties and the regressive attitudes previously discussed. If these two powerful emotionally laden situations persist and condense into a common pattern with the anxieties and defense reactions of battle experiences persisting by displacement onto the marital situation, a definite background is clearly created for a lifetime neurosis. There is a possibility of this following in a large number of cases unless definite steps are taken to prevent its development. The later emotional relations with the children will be colored thereby as well and in the same manner as the father finds himself under the pressure of these persistent, unresolved emotional conflicts. If this regression into sadistic rivalry reactions is maintained and displaced to the children, there will be an unfortunate handicap which that generation will be forced to overcome. From the present rather limited view of the total situation, it seems that the most fundamental accomplishment would be to break up the tendency toward displacement and condensation and to show the patients the meaning of their anxieties and symptoms in relation to combat reactions and thereby to keep them related to their original focus alone. If effective this indeed would be a true and definitive psychotherapy. The great difficulty, of course, is the scarcity of competent psychiatrists to handle this most individual problem among the great number of cases needing their aid.

One can see today the early phases of these developments at work. Among groups of these men returned from overseas duties to Redistribution Centers here in this country, one notes this outstanding fact—most everyone has his sweetheart, either the wife or the girl he is about to marry. In a sense, this is a natural development but one might well raise the question if there is not an added factor of flight from the regressive reaction into marriage as an expression of inner tensions. This is not to decry marriage, but only a plea to provide as good an opportunity as possible for them to be happy marriages. The outlook is not so bright unless the healthy urges outweigh and can overcome the less stable pressures.

Therefore, in relation to this problem, it is incumbent upon psychiatrists to utilize effectively the knowledge of unconscious processes and to develop practicable and workable techniques whereby a mental hygiene worthy of the name can be practiced, by breaking up vicious circles which later would develop into definite psychoneurotic

patterns that would persist for the life's span of the individual. Here, too, is an opportunity to use effectively this knowledge of deeper unconscious mechanisms and tendencies to study the development and alterations in the personality as these condensations and displacements take place. Kardiner, in his earlier writings on the subject of traumatic neuroses, saw only the later effects after these early processes had definitely become crystallized and established as an integral and insoluble part of the individual's life pattern. At that time they had passed across the threshold of reversibility and beyond the possibility of fundamental change. It may be possible with our advanced knowledge today to prevent these cases from gravitating into the end result which Kardiner has so ably described in those who were less wisely handled during and after the last war.

Early in his career of scientific observation, Freud stated "there is no neurosis without a disturbance of the sexual function." In a sense, one might say today that these cases of psychoneuroses and other severe anxiety reactions arising from the danger situation of war clearly violate Freud's original dictum. However, without countering this by saying that those who break may show a

fundamental lack of adequate psychosexual development as opposed to those who do not break, one well might say that the neuroses of today which originate in the battle situation five years hence will permeate the individual's total life, including chiefly the erotic aspects, after displacements and condensation have taken place unless means are taken at this time to prevent such developments. As Freud's observations were on the end results of infantile anxiety reactions long after these defensive attitudes had spread throughout the total personality, it is not difficult to relate these observations to his findings and to predict the same state existing in these cases in the future.

It is fervently hoped that most of these conditions will prove to be transitory, essentially fear or battle reactions, and operational fatigue, and the neurotic residuals will be minimal and will clear up promptly with evacuation from theatres of operation and institution of adequate rest. But for those who show persistent residuals, a splendid opportunity for preventive psychiatry may be worked out at this time if competent personnel can be made available for the development of an adequate preventive program.

HONORARIUM

The Institute of Living, formerly the Neuro-psychiatric Institute of the Hartford Retreat has offered through the American Society for Research in Psychosomatic Problems an honorarium of five hundred dollars for the best research project completed and prepared for publication under the auspices of the

Society before January 1946. This offer of an honorarium was accepted at the last meeting of the Council in December, 1943 and the conditions under which this is to be administered will be discussed at the spring meeting of the Council.

BRIEF PSYCHOTHERAPY IN WAR NEUROSES*

LT. COLONEL ROY R. GRINKER, M.C., AND MAJOR JOHN P. SPIEGEL, M.C.†

The American people are not satisfied unless a problem or situation new to their cognizance is rapidly treated by some new discovery. Hence when the lay and military minds were rudely awakened to the fact that war neuroses formed such a large proportion of living casualties, they demanded from psychiatrists whose words and writings of the last 25 years had largely gone unheeded, new and rapid methods of prevention and treatment. The publicists seized upon two techniques of therapy which seemed to fulfill these requirements. The first, treatment in forward evacuation hospitals with rest, sedation and persuasion, was used in the last war and completely described by competent observers. The second, narcosis therapy whether in the form of continuous sleep, narcohypnosis or narcosynthesis cannot be called new since it has been used in civilian practice for at least ten years.

Without equivocation it can be stated that the only knowledge newly applied to the prevention and treatment of war neuroses up to the present, whether in forward hospitals, general hospitals overseas or at home is a sound, rational understanding of the dynamic conflict between the unconscious sources of anxiety and the ego forces and an understanding of the symptoms produced by psychological defenses, regressions and collapse. Furthermore, based on such knowledge, the only new technic evolved in the treatment of war neuroses is brief psychotherapy derived from psychoanalytic principles.

Because of many misuses of the terms war neuroses and psychiatric casualties even by psychiatrists, it is wise to interpolate at this point a rough segregation of neuroses as they are related to phases of military life:

1. Neuroses of war time occurring before or at induction before exposure to military life has had any effect.
2. Neuroses caused by the restriction, complications, hardships and dangers of military training or service in the United States.
3. Neuroses caused by foreign service in which the factors of separation, loneliness, severe climatic conditions, poor living conditions, lack of work, overwork, etc. are important.

* Presented before the meeting of the Brief Psychotherapy Council, Institute for Psychoanalysis, Chicago, January 14, 1944.

† Army Air Forces.

4. War neuroses caused by actual combat or exposure to enemy attack by bombing etc.

It is only the last category that we can justifiably term war neuroses and label those afflicted as psychiatric casualties of war. It must be stressed and thoroughly understood that this group is indeed made neurotic by the psychological stresses inherent in warfare. One's entire grasp of the principles of therapy and the goals to be achieved depends on such an understanding. Men who develop disabling neuroses in the first three stages in their preparation for combat can as a whole be categorized as suffering from latent or active neuroses of considerable severity. They become ill or their illnesses are exaggerated by stresses little more severe than may be met in civilian life and the clinical syndromes are little different from those seen in civilian practice. Air corp cadets in training are an exception in that their lives are in constant jeopardy, and biological reactions to falling stimulate intense anxieties.

One can understand the attitude of lay people, many military officers and some psychiatrists that the development of neuroses among the first three groups indicates some sort of weakness which they term inherent, that therapy under army auspices is likely to be prolonged and unsuccessful, and that return to the more stabilized civilian environment is probably necessary to achieve a re-establishment of the old, more or less, successful equilibrium. But such an attitude is erroneous when applied to the group of war neuroses, and when held, even among psychiatrists, indicates a lack of understanding of the condition. It must be re-iterated even at the risk of appearing trite that: War neuroses are caused by war. No one is immune from a war neurosis; anyone, no matter how strong or stable, may develop a war neurosis under proper circumstances. The importance of these premises lies in their relation to therapeutic attitudes, since, as we well know, the more an external stimulus in reality is important in causing a psychological disturbance, the more favorable is the prognosis for recovery of equilibrium.

Many psychiatrists are loath to recognize that conditions of war bring new factors to play upon the soldier's ego and insist on using the term traumatic neurosis, indicating the identity of war neuroses with a type of disturbance seen in civilian life as a result of accidents, especially in industry.

But there are many differences. The civilian traumatic neuroses usually occur as a result of a single violent stimulus, the latent period is short, some sort of physical injury is usually concomitant, the secondary gain is huge and socially acceptable, and ego ideals are usually not in conflict with the illness. War neuroses are rarely the result of a single experience but many factors including monotonously repetitive dangerous stimuli, difficult physical activity, intolerable external environmental conditions, protracted and repeated evidences of desertion by all supporting and friendly human relations, and violent disruption of close personal ties with dead and wounded comrades, are a few of these factors. There is a long latent period before the soldier succumbs, physical injury is usually absent and the ego disruption is tremendous, often leading to severe regression and long-persisting disorientation. The illness is the stimulus for a new and serious conflict with the ego ideal incrementing anxiety, so that removal from combat may become more secondary loss than gain. The anxiety of the illness is less tolerable than the fear of battle. Finally, war neuroses develop after the protective factors such as morale and the widened ego spans in closely knit groups have collapsed.

In order to give you a glimpse of the total picture of therapy we shall enumerate our four general goals:

1. Prophylaxis against breakdown. This is accomplished in the AAF by adequately instructed squadron surgeons; in the ground forces, by a psychiatrist recently assigned to each combat division.
2. To return the cured or markedly improved psychiatric casualty to his combat unit if possible.
3. To return the rehabilitated soldier to limited non-combatant duty in an occupation and a locality which do not contribute to a relapse.
4. To treat the more serious case early and adequately, or send him where such treatment is possible (zone of interior if necessary) so that he may be rehabilitated as a person able to lead a fairly normal independent life in the future without dependency on his family or country—such rehabilitation to be completed within the framework of the military services.

At first military authorities were only concerned with the number of patients returnable as effective combat troops. As the magnitude of the psychiatric problems became apparent, they became interested in treatment for return to limited service. The need for an active program of bolstering morale and other preventive steps against the development of neurosis only recently have been recognized. Plans are now under way for an ex-

tensive program of rehabilitation. Slowly but effectively the whole psychiatric program is being launched.

However, no matter how intense or genuinely the military authorities become interested in any or all phases of psychiatric treatment, the very magnitude of the program in terms of numbers involved, requires speed, and hence briefness, as far as treatment for the individual soldier is concerned. It has been stated that brief psychotherapy does not always mean briefness in terms of the total period of time over which the therapist sees his patient occasionally and for brief periods. The military situation actually demands a literal interpretation of the term brief. The soldier patient can be treated for short periods of time only—in every sense of the word. You can therefore understand how appealing can be the promise of such pharmacological panaceas as sleep treatment or how alluring the temptation to shock by electricity, in rapid tempo, hundreds of soldiers into temporary amentia, then too benumbed to appreciate their anxieties. Psychotherapy is challenged to produce results in quantity quickly. Can it do the job alone or in combination with other methods? We shall attempt to answer this question on the basis of personal experience and observation of the work of many other psychiatrists overseas.

Let us consider war neuroses, in simple terms, as the effect of an interaction between the dynamic forces of anxiety and the protective devices of the ego. Although we do not minimize the latent and overt anxieties of the individual's previous neurosis and character or ignore the limitation of his ego span produced by the scarring of previous psychological traumas, we are dealing with the personality functions in relation to a new and crucially vital situation—the battle scene and all its stresses. It is the war situation that brings him into disequilibrium and forces him into new adaptations that may surpass his limitations. We are forced to make a psychological survey of the psychiatric casualty before deciding on proper therapeutic procedures. Is the patient's anxiety of such strength that his ego cannot cope with it and has already partially or completely adopted defensive technics which we recognize as emergency, uneconomical and which have reached the quality of illness that we call neurosis? Or has the ego strength been weakened by fatigue, sleeplessness, cold, hunger and other physical privations or has it been weakened by psychological stimuli of disturbed interpersonal relationships, loss of confidence in leaders and other factors which we term weakened morale?

For the latter it is obvious that our therapeutic procedures will encompass sedation, opportunity for sleep, warmth, food, increased physical com-

fort and rest from battle. On the psychological side procedures calculated to strengthen the ego will be employed. These include persuasion, strong suggestion, re-identification with the all-powerful group and stimulation of the ego-ideal. In brief this is a "covering up" method. As will be described, it works well when the stage of actual neurosis has not yet been reached and only when evidences of anxiety are becoming manifest on the surface. For ground troops four or five days in a forward evacuation hospital and for air force personnel a like period in a rest camp succeeds in returning many such men to combat. To catch these men before they reach base hospitals is important, hence in the combat zone psychiatrists are now stationed well forward and special psychiatric evacuation hospitals are being established.

For those whose anxieties have reached an excessive quantity and do not become reduced on cessation of the stimulus and for those whose anxieties have already stimulated neurotic ego defenses or broken the ego completely, "covering up" technics are of little value. Such procedures as continuous sleep treatment are ineffective. Ego strengthening results in no benefit until the terminal period of therapy. First and foremost must be the use of "uncovering technics." These require the reliving of the traumatic experience with a dosed emotional release as the ego is strengthened and guarded by the psychiatrist. Subsequently a variety of methods are used to increase the ego's span, and to restore its discriminatory and reality-testing functions.

In one case we assist the ego in repressing or enduring anxiety if it can do so in a relatively non-symptomatic fashion. In the other case we unleash the forces of repressed, displaced or converted anxieties and the experiences related thereto, after which we direct our attention and therapy to a reconstituted ego and superego. The polar extremes inherent in these two methods necessitate experience in selection of patients for each. To make only one generalization: those patients with moderate amounts of free-floating anxiety and little ego deformation are best suited for repressing technics.

We are now ready to discuss brief psychotherapy and its adjunctives in the forward areas. In the African theater of operations Majors Wishart, Tureen and Hanson were largely responsible for this work. The medical care is simple and logical. Predicating that the ego forces have been weakened by cold, hunger, exposure, lack of sleep and physical exertion, the patient is given sleep with the help of adequate sedation, warmth, food, baths and clean clothes. The psychological attitude within the hospital containing men from the same unit

with minor wounds, is set for rapid return to duty. The discipline is military rather than hospital and the patients are required to eat from the mess line and generally care for themselves.

The psychotherapy given by the psychiatrists at these installations was very brief indeed and involved mostly suggestion and persuasion, technics which they had used in civilian life with success. Thus there was present the necessary therapeutic enthusiasm on the psychiatrist's part—truly a necessity for success by these methods. Each man was interviewed in the open ward. Only when highly personal matters were discussed was the conversation inaudible to others. The convincing reassurances that the psychiatrist had no doubt of the patient's ability to go back, the pseudo-physiological explanations of anxiety, discussions of the universality of fear and the leading questions "You want to go back and try again don't you?" were all loudly given so that the entire ward heard the same procedure repetitively. There was no effort at uncovering sources of anxiety, no lending of support but a gradual increasing firmness in the pressure to return. Whenever sleep had to be prolonged by barbiturate narcosis, it was utilized as a hypnotic state and repetitive deep suggestion was given to return to the fight. The final step in pressure was an intensification of the superego demands. Tension was stimulated or increased by indicating that relief from the fight was dishonorable, that family, friends, comrades and country expected the soldier to return and finish the job. The maximum stay at the forward hospital was four to five days; longer than this was considered indulgence and conducive to binding anxiety to a symptom.

The dynamics of this technic will be familiar to all of you and we have already indicated that patients without full-blown neuroses are chosen for the procedure. Certainly it can only be this type that some psychiatrists have reference to when they state that war neuroses are not neuroses because there is no lasting ego change. They surely cannot have reference to those cases seen in rear areas. Sixty percent of cases chosen for this treatment are returned to combat duty. We shall not indicate to you the basis of our doubts regarding these statistics or our observations on the rate of relapse. Sufficient is it to say that at least for a time troops are returned to combat, effective or not is hard to say. Furthermore, the end-result in many of these soldiers carrying a reservoir of repressed anxiety will be a post-war problem, if not before. There can be no doubt that the work is necessary and if done early, close to the front lines and with therapeutic enthusiasm, it will return many men to combat. But it requires a fine psy-

chiatric sense to determine the end result in the man—if that is important. Its goal should not be the statistical result.

We now come to the uncovering type of psychotherapy. Many vague and intangible factors, which often do not appear until the therapy has begun, are related to the prognosis in individual cases. However certain general criteria can be emphasized, the significance of which you well know:

1. The patient's history: his previous neurosis, his assets and capacities.
2. The degree to which exhaustion contributed to the breakdown.
3. Previous recent psychological traumata.
4. Severity of precipitating traumata.
5. Quantity of anxiety.
6. Strength of the ego
7. Capacity for psychological understanding.
8. Degree of repressed hostility (these become fixed and chronic early.)
9. Type of clinical syndrome.
10. Time available for therapy.

The uncovering technics can only be employed in the combat zone within a general hospital or a special psychiatric station hospital. Adjuncts to good psychotherapy include adequate sedation to insure sleep, improvement of physical condition and treatment for all complicating illnesses, good nursing and general convalescent care and occupational therapy. These we do not need to discuss.

What demands our attention is the fact that we do not have the time to work through resistances in an effort to bring repressed emotions to consciousness. Nor do we have the time to strengthen the ego so that uncovered anxieties can be tolerated even in small quantities. Fortunately we have at our disposal the use of barbiturates which should be used initially in most cases before further psychotherapy. Some patients with less anxiety can be dealt with adequately without this preliminary narcosis. The method by which we used barbiturates has been termed narcosynthesis.

For this is used intravenous sodium pentothal, which induces a state of seminaresis during which the patient is able to live through his traumatic battle experience. The treatment causes the patient to re-experience the intense emotions which were originally associated with the actual battle experience and which were perpetuated in various stages of repression up to the moment of treatment. At the same time the action of the drug enables the patient to deal with these revived emotions in an economical and rational manner rather than with catastrophic defensive devices which end in serious neurotic crippling.

Under this treatment the patient seems to syn-

thesize, to put together the fragmented emotions and impressions connected with his experience thus constructing a memory which corresponds almost completely with the original experience. Freed from the impact of the immense forces of the repressed emotions, the patient restores contact between the powerful inner emotional drives and the world of reality.

There are many technics employed with intravenous barbiturate injections, varying with the psychiatrist's concept of the dynamics of therapy. Some use the intravenous sodium amytal or pentothal for continuous sleep. We have tried this method and found it ineffective. Patients do quiet down and the milder anxiety states seem much improved, but with the slightest sharp sound or situation reminiscent of danger, they quickly collapse. Other psychiatrists ask the patient questions, some give strong suggestion, while still others merely permit the patient free expression and do not enter into a discussion with him either during or after the treatment.

The following method was found quite successful in our hospital: The patient is isolated in a semi-darkened room and is told that he is going to receive an injection which will make him sleepy. The drug is then injected in the antecubital vein at a slow rate (0.1 gram per min.) while the patient is asked to count backwards from the number 100. Shortly after the counting becomes confused and before actual sleep is produced, the injection is discontinued. If the patient is mute or stuporous and therefore cannot count, a corresponding depth of narcosis must be estimated from the tonus of the eyelids and the pupillary reflexes. In rare instances, the injection is difficult because of violent tremor of the arm. In almost every case there is some increase in the symptoms of anxiety as the injection is initiated. As it proceeds, however, the tremors disappear, and the patient becomes quiet. Speech, if present, becomes somewhat thick and there may be some spasmodic coughing, but we have not seen the development of pulmonary edema with this dosage and technic.

By the time a satisfactory level of narcosis is reached, a few individuals will begin to talk spontaneously, and if the patient is on the subject of his battle experience, he is allowed to proceed without interruption. In the greater number of cases verbal stimulation is necessary. The patient is told in a matter of fact manner that he is on the battlefield, in the front lines. Depending upon the amount of known history, specific details are added corresponding to the actual situation at the time of the trauma. If little or nothing is known of the original situation, a typical scene is depicted. The patient is told that mortar shells are flying about,

that one has just landed close by, that enemy planes are overhead or that tanks are approaching from the flank, and that he must tell what is happening. The amount of such stimulation which is necessary to start the patient talking varies tremendously. Some react with the first few words and launch into a vivid account of the action. Others resist for varying periods, and when such resistance is maintained, the stimulation is made more dramatic and realistic. The therapist plays the role of a fellow soldier, calling out to the patient, in an alarmed voice, to duck as the shells come over, or asking him to help with a wounded comrade. Persistence is rewarded in almost every case by an account of the scene in progress.

It is impossible to describe the varied reactions during a pentothal narcosynthesis. Some patients act out the traumatic parts of the battle scene. If this is their reaction, they are allowed to get out of bed and to wander about the room looking for a slit trench, a lost friend, the Command Post, or whatever the piece of action in hand calls for. Some live through the scene verbally and emotionally without the production of much motor activity. They talk to unseen buddies, wince at unheard explosions, bury their heads under the pillow when the shells come close and flatten themselves out on the bed as if they were in the bottom of their foxhole.

It is electrifying to watch the terror exhibited in the moments of supreme danger such as at the imminent explosion of shells, the death of a friend before the patient's eyes, or the absence of cover under a heavy dive bombing attack. The body becomes increasingly tense and rigid; the eyes widen, and the pupils dilate, while the skin becomes covered with perspiration. The hands move about convulsively, seeking a weapon, or a friend to share the danger. Breathing becomes incredibly rapid and shallow. The intensity of emotion sometimes becomes more than they can bear and frequently at the height of the reaction, there is a collapse and the patient falls back in bed and remains quiet for a few minutes, usually to resume the story at a more neutral point. Some patients return over and over again to one short traumatic scene, living it through repeatedly, as if, like a needle traveling around a cracked record, they could not get past this point. In such cases, more than one pentothal narcosynthesis is required, each further session bringing out new pieces of repressed material. This situation is more common in the stuporous and amnesic anxiety states where the ego seems incapable of digesting the traumatic experiences except in small divided doses.

Other patients in whom there has been amnesia without much overt anxiety become suddenly

blocked in the account of their experience as they approach the moment of the trauma. As the anxiety begins to appear in anticipation of the traumatic scene, they cease talking and resume their characteristic defenses; they don't know what happened next. At this point the therapist applies pressure, demanding, forcing the patient to proceed. More than one session of narcosynthesis may be necessary to uncover the trauma. Frequently, especially among the milder anxiety states, the patient does not live out the scene in the present, but tells it as a story. That he has thus been able to achieve some distance from the traumatic experience and is able to regard it as an event of the past does not militate against the release of the violent emotions connected with the experience.

During the time that the patient is thus wrestling with his traumatic experiences, the therapist plays an active or passive role in the performance to the degree required by the situation. No attempt is made to produce a hypnotic situation. The therapist remains as a vague background figure from which vantage point he can step into other roles as it becomes necessary. Some patients, especially those with only mild anxiety, good personality, and good contact with reality, are aware of the Medical Officer's presence throughout the treatment. They realize that they are telling the story to him and rely upon him only for moderate support and sympathy during the moments of strong emotion. The severe cases, however, in which there is much "living through" of the experience in the present tense, are actually plunged in the battle situation. Here the Medical Officer is called upon to play a variety of roles. When the patient becomes convulsed with the violence of the terror, he must step in as a protective and supporting figure, comforting and reassuring the patient, and encouraging him to proceed. If this is not done there is a tendency for the initial protective reactions of stupor or amnesia to be re-established, and the patient makes no progress. When intense grief and anger is exhibited over the death of a best friend or guilt over the killing of a young German soldier, the patient frequently throws himself into the arms of the therapist who sits at the bedside, as if seeking forgiveness and consolation from a kindly parent. Such consolation the therapist supplies, because since the need of the moment is so great, the effect of appropriate response to the patient is much more beneficial at this time than during later psychotherapeutic interviews when the problem is discussed in a more calm and detached mood. Some patients who talk constantly throughout the session to their friends become blocked at certain points of emotional height. The therapist then plays the part of the friend, stepping, as it were,

into the battle scene proper in an active role. He discusses plans of action, ways of evacuating wounded comrades, or whatever is cogent to the particular situation in order to further the progress of the events at hand.

When the initial problem is one of overcoming a somatic symptom such as mutism, deafness, or paralysis, the therapist may be required to adopt an authoritative role and command the patient to talk, to hear, or to move his limbs. Such direct interference is not always necessary. As the anxiety related to the traumatic situation emerges the symptom disappears spontaneously. A patient with a severe conversion symptom under pentothal may begin to talk about his experiences in a calm detached manner, but as he progresses, increasing quantities of anxiety are liberated. The somatic symptom disappears as the appropriate emotional reactions are liberated.

The idea that narcosis therapy of any form or of abreaction is all that is necessary for the treatment of acute war neuroses is erroneous as proven by the fact that if nothing else is done for the patient he relapses, although rarely into his previous severe regression. Psychotherapy must be instituted as soon as possible; in fact as the patient recovers from the pentothal effects, which he does very quickly, the interview is continued in his conscious state. Our psychotherapy must necessarily be brief so that only 15 to 30 minutes every day in the early stages of severe cases, later every other day or twice a week are all that can be spent on each patient in an irregular schedule depending on the pressure of work and the necessity for evacuation.

The goals of brief psychotherapy are sharply limited as in civilian practice. We can make no pretensions of being able to alter the patient's fundamental personality. We endeavor to release unconscious psychological tensions, to strengthen the ego forces and decrease the severity of the superego's pressure. On the basis of experience we soon learned that in these severe cases, treated at general hospitals, our goal from the military standpoint had to be reduced from that of return to combat duty which could be accomplished only in a small per cent of cases to that of return to reclassified or limited duty at best. Our failures were destined for evacuation to the United States for further treatment in the hope of achieving our last goal—return to civilian life without dependency. Let us see how we go about achieving these effects by artificially separating our procedures into steps for the sake of this exposition, remembering that the actual therapy is a blended whole and not a stage-like process. Case reports and details in technic cannot be discussed in our limited time.

Positive transference to the psychiatrist is estab-

lished rapidly in almost all cases. The psychiatrist is the one man whose main concern is the individual soldier as a person and not as a cog in a tremendous machine. He represents to the neurotic soldier the nearest approach to that for which his whole sick being cries—in the throes of his devastating anxiety—a kindly interested parental figure in sharp contrast to the authoritative demanding voices of his officers. You can readily understand that when the psychiatrist "goes military" on donning his uniform he ceases to function as a psychiatrist.

Usually transference relationship is quickly established and has obvious infantile dependent characteristics which the therapist encourages by his sympathetic interest, his assumption of complete responsibility for the patient's progress. At this stage he supports and comforts the patient who at first, convinced that the whole world is hostile, accepts the support only provisionally. But the soldier's need is so great that he soon leans all his weight heavily on the psychiatrist. Transference relationship is less easily established when ego strength is less altered in the hysterics and psychosomatic disturbances. When the transference starts as a negative feeling in an irritable, sullen, withdrawn individual we have learned that this patient usually suffers from considerable repressed hostility, is the type that becomes fixed early in a chronic state and has a less favorable prognosis for recovery. At least in the combat zone working through transference resistances require too much time.

Release of unconscious tensions is mainly concerned with the emotion of anxiety, the excessive quantity or the persistence of which is the nuclear problem of war neuroses. When the ego has been able to successfully ward off the overpowering subjective aspects of anxiety by the formation of conversion or phobic symptoms, resistance to conscious re-experiencing of anxiety is too great to overcome in a short time. When the ego has regressed before the onslaught of anxiety, the physical expressions of which then dominate the somatic symptomatology, too little ego remains to work with. Therefore, in most of these cases we must have recourse to the method of narcosynthesis which has already been described. Without going into the psychophysiology the observed effects are reappearance of ego functions, revivication of free anxiety and loss of somatic symptoms of conversion and of excessive autonomic excitation. Sometimes more than one treatment is necessary. Often the anxiety is too powerful especially in cases with profound somatic regression, (the extrapyramidal syndromes) and the ego regresses anew under therapy. The therapist must

learn by experience the amount of anxiety that can be tolerated at each stage of ego recovery.

We have noted two phenomena of significance. A soldier may collapse in a battle but the uncovered anxiety may be related to episodes in battles which had occurred several months ago. Many cases with severe ego breakdowns were not greatly improved by re-living the situations of battle which initiated the collapse. They revealed old anxieties and resentments dating back to civilian life. It is as if a wave initiated in the battlefield swept everything before it as it found added velocity in old gradients of unsolved conflicts. These naturally have to be dealt with at the moment.

Pentothal overcomes resistance against the repressed anxiety and often a partial recovery intensifies these resistances. But the patient in psychotherapy must be encouraged and often firmly persuaded to relate his traumatic experience to the therapist many times. Often gaps in memory and remnants of repression can be observed. The soldier may forget what he has related under pentothal and must be reminded thereof. The resistance of the ego representing its incapacity to tolerate anxiety is decreased as confidence in the psychiatrist expands. As the ego absorbs strength and support from the therapist its capacity to endure anxiety increases. But the psychiatrist must maintain a constant pressure in his interviews but never too intense or regression will recur. Experience soon produces skill. We shall not recount the interpretations and demonstrations given to the patient since in reality he only endures the pain of the liberated anxiety because of his emotional need for the therapist.

Gratification of dependent needs is of course begun in the initial interviews, is carried on during pentothal treatment and in psychotherapy afterward. It is the basis of the transference. When I discussed the liberation of unconscious anxiety no reference was made to the danger that this signal foreboded. It now becomes apparent why gratification of dependent needs is more than a trick to hasten transference feelings. As anxiety reaches consciousness the source of anxiety becomes apparent in every incident, every story and every reaction of the patient. He sobs, weeps violently, throws himself into the psychiatrist's arms demanding support and comfort as he tells how he was deserted by every semblance of a protective, supporting or kindly figure. Officers, other soldiers, friends and buddies all suddenly become impotent in the face of the ever present enemy fire and activity. He is an isolated individual in the darkness and all interpersonal relations are violently torn asunder. True we see the automatic emergency reactions to danger in reality—the

ducking, digging, running movements revived under pentothal but these subside and the infantile cry still resounds. True we see a semblance of rage as with clenched fists pounded on the bed the soldier screams at the Nazi bastards and what he will do to them. But these are impotent displaced hostilities. We do not wish to deny that some patient's anxieties are signals of distress because of intense activation of their unacceptable hostilities or that in many patients the emergency mechanisms stimulated by the external dangers become excessive and overpowering to the ego or fail to decrease as the danger disappears. But in the vast majority of cases the source of anxiety is a feeling of desertion, of being left alone like a child in a dark room with the door shut and no human voices audible. It is now apparent why so much gratification and affection must be given these men. They have also given far beyond their capacities and the overdraft on their psychic banks must be replenished before they can reassume their resemblance to the adult.

Re-cognition of the temporal and spatial present is a process which proceeds rapidly up to a certain point under pentothal but the final reorientation in severe cases is slow and beset with relapses. By virtue of the dangerous and helpless situation, the ego has reacted as an infant might. It abandons the scene—stupor; refuses to listen to the noises—deafness; refuses to talk about it—mutism; or refuses to know anything about it—amnesia or in milder cases develops phobic mechanisms. During pentothal and shortly after, the patient will give up these defenses as long as the psychiatrist furnishes concrete evidence of his supporting presence. The patient looks through the therapist's eyes at a world here and now which is devoid of danger, but these are only borrowed eyes. Interpersonal difficulties on the ward, disagreements with nurses or patients, airplanes overhead, gun fire in the distance, worrisome letters from home all serve to remind the patient of the dangers around him. Sometimes months later the soldier, already working steadily in a quiet sector, will have a complete relapse on receiving bad news from home. We anticipate that many war neuroses will precipitate into activity many years later in civilian life when the stress of environment rekindles these old feelings of helplessness. The anticipation of return to battle is a potent force in keeping alive the ostrich technics of the ego and this must be dispelled in appropriate cases as early as possible by strong re-assurances. The process of learning that the world is not entirely hostile is achieved at first by an identification with the therapist as a non-combatant still serving a useful purpose. The patient's ego span and strength are increased as he

borrow the strength of the psychiatrist. This is done initially through powerful and persistent suggestion—later by rational interpretation of each and every apparent stimulus to regression. Thirdly, time is necessary for the patient, at first with the therapist's support, to test the human environment's sincerity. Here our troubles are great for the army is not conducive to such testing. Many soldiers return to us for further working through of their reactions to relatively mild rebuffs and rejections, which in severe cases may assume the status of paranoid trends. This phase of therapy is not new to any of you who have dealt with patients whose early lives were filled with real rejections and you know the patience required and the time necessary for "working through."

Release of repressed hostility: This is the hardest task of all and often fails completely. These patients either have developed excessive quantities of aggression which their egos cannot permit escape into consciousness or they are psychologically incapable of dealing with even moderate quantities of hostility by any other method than repression. These are the stubborn rigid characters with much reaction formation often of the compulsive type. They suffer from repeated battle dreams, tend to withdraw from social contacts and show a high degree of continuous irritability. Under pentothal the release of some of their aggressions often shakes them into violent symbolic gestures or even convulsive spasms. They tend to develop into a chronic stationary state early in their course and constitute the type of patient we have seen for years in Veterans' Bureau Hospitals as sequelae of the last war.

For this type of patient, pentothal is used for several interviews until it is obvious no more can be done for them. We then use convulsive shock treatment and in a few selected cases can expect very good results. With subsequent psychotherapy recovery for reclassified service may be effected. Depressions precipitated by the loss of a buddy are also often recalcitrant to other forms of therapy. In such cases the ambivalent relationship had left much unconscious hostility to the dead comrade unacceptable to the conscious ego. Brief psychotherapy is usually not possible since the amount and extent of interpretation of displaced hostility to the immediate environment can only be accomplished by a slow pace with much repetition. No one patient can obtain enough personal attention for the treatment to accomplish a great deal.

Identification with the therapist, we have seen as a potent first step in the viewing of the world as a not altogether hostile place. It serves another dynamic purpose. The hostility of the superego is

one of the principal forces that harass the ego and weaken it. Every patient suffers in varying degree from a sense of failure, most severe in those with strong overcompensations and those who endure anxiety for long periods of time. As regression recedes, depression over the failure to maintain the standard of military effectiveness demanded by conscience, becomes apparent. The soldier's ego ideal insists that he is yellow, a coward, an impotent useless failure, with not even a scratch to account for his desertion of duty. As long as the superego maintains its identification with the dead and living friends on the battle field, it will remain angry and demanding. Often the ego ideal stems from a father who carried on valiantly in the first World War, and return home in the condition of neurotic illness becomes so painful a thought that many demand to return to the battlefield as a displaced suicide attempt. The step in therapy familiar to you is the weakening of the old superego demands by identification with the therapist and appropriate interpretation. As such identification is slowly increased the depression lifts and the patient sees himself as one who did the best, often better, than he could and one who still has a valuable function in the army as a noncombatant. This process is not difficult or lengthy. It is hastened by occupational therapy of a military nature and is completed when the soldier makes new identifications with a non-combatant unit and its group ideals.

Development of an independence of the therapist. This is the terminal stage of therapy and can only be begun in the hospital. It requires much working through and persists for months. The reconstituted ego with its re-established contact with a safe and secure reality, convinced that return to the battle is not to be its fate, is now directed to view the future. Still smarting and shameful at the gibes of conscience, its self respect is furthered by identification with the non-combatant psychiatrist. But it still had to be convinced of its ability to function without continuous support. This is aided by means of occupational therapy: not basket weaving or making objects of art but real work of value to the war effort. Clerking, typing, litter bearing and a hundred and one jobs around the hospital are used to busy the soldiers and hasten the return of their self respect. Soon they ask to be discharged and rejoin an outfit in which they can work out their own salvation in order to return home with heads high as men who have done their job well. By working through their rehabilitation in the framework of the army itself dependency on family and government pension can be reduced to a minimum. In the severe

anxiety states, however, dependent trends may persist with great obstinacy. This is particularly the case when the patient refuses to recognize or to admit the significance of his dependent needs. In many patients in whom anxiety and depression, or both, continue long beyond the period when the ego should have begun to assume control, it becomes clear that the continued helplessness has a concealed purpose. Whereas initially the ego has considerable justification in regarding itself as injured and unable to cope with the environment, after a prolonged exposure to a protected environment such justification no longer exists. The persistence then is due to the attempt of the ego to bribe and appease the demands of the ego ideal. The ego says, as it were, "This is what you have done to me. I stuck it out to the limit at your behest until I was broken and maimed; now I am weak and helpless, and in no state to return to combat. You must forgive me because it is not my fault."

We have mentioned factors important in prognosis. Let us now see what clinical syndromes in general are efficiently treated. The free-floating anxiety states offer a good prognosis although many severe cases require longer time only available at home. This holds true when severe somatic regressions are also present. The conversion states, phobias, many types of depression, likewise promise well for recovery. Psychosomatic visceral disturbances unless very mild and without history of previous similar illness usually have to be sent home. The same holds true for those showing paranoid trends. We believe that with adequate facilities, proper use of adjunctive treatment such as shock and narcosynthesis and the proper use of psychotherapy of the uncovering type, based on sound dynamic principles, followed by a sound work rehabilitation program, most of even the severe cases can recover in hospitals in this country. These men need more time for the working-through process.

Under present circumstances, however, our optimism is unjustified because firstly we do not have enough psychiatrists and secondly we have few psychiatrists trained in the type of brief psychotherapy we have been discussing. But we should like to answer the question raised earlier in this presentation. Can properly used psychotherapy do the job of rehabilitation? The answer is emphatically, "yes," as we have shown in a limited number of cases personally studied. We need

more time and more trained therapists and of these requirements, the latter is more urgent.

Never before has there been so much interest among medical men in psychiatry as we have seen expressed in the army. They are interested in dynamic psychiatry for they have seen how little value there is in diagnostic labelling, persuasion, suggestion and authoritative forcing. They are interested intensely in psychosomatic medicine as in the army they really observe hundreds of such cases. Lastly, they are interested and demand knowledge regarding short methods of psychotherapy. It is from this group that the army can select a limited number of talented individuals, expose them to clinical teachers actually working with patients and give them enough knowledge so that they can function as brief psychotherapists at first under direction and later independently.

The AAF teach squadron flight surgeons psychoanalytic psychiatry in didactic courses. One class taken to a clinic in a nearby general hospital where several types of cases were presented asked the Major in charge such questions as what is the man's conflict? how do you analyze his resentments? what treatment do you use? etc. When they were informed frankly that the Major had no time and didn't know the conflicts and only observed the cases and sat on boards discharging them to the Veteran's Facility, this class of 150 men became disturbed. At least 10 in this group wanted further training in the field. We have a grand chance in our service schools to find needed additional help in rehabilitation. These physicians will not necessarily become psychiatrists; some of them will continue their training after the war. Most of them will be far better physicians after the war is over. Therapeutically they will have a fresh and enthusiastic optimism which psychiatrists unfortunately as a group have lacked. We have had to convince many psychiatrists coming overseas that war neuroses are amenable to therapy, are not found in weak and useless characters and deserve active help every step of the way from evacuation hospitals to zone of the interior.

Everyone—neophytes and trained psychiatrists have a great deal to learn from a study of war neuroses, much of which will be applicable to problems in civilian life. Especially is this true in the field of therapy. We predict that dynamic brief psychotherapy will be well established as a technic by the time this war is finished.

COMBINED AMPHETAMINE SULFATE (BENZEDRINE SULFATE¹) AND BELLADONNA ALKALOID² THERAPY OF THE REGRESSION NEUROSES³

REPORT OF THIS MEDICATION WITH CLINICAL AND NORMAL SUBJECTS

JAMES S. L. JACOBS, M.D.⁴

The treatment of the regression neuroses and incipient schizophrenia is a difficult, time consuming task. This is especially so in the therapy of office or clinic, ambulatory patients. Recourse may be had to one of several types of shock therapy, but this is not always advisable; too seldom effective. The present report of a new form of treatment of these conditions is a preliminary one. The series of cases is admittedly small. Furthermore, prompt publication may be justified by our hope that this form of therapy might prove valuable in the treatment of some conditions confronting neuropsychiatrists in the armed services today.

The clinical material to be discussed consists of eight college students. Four representative cases will be discussed in detail. Physical examination and laboratory studies of all patients were essentially negative. The criteria employed in making the diagnosis of regression neurosis were those previously outlined by Kempf (8) and Washburne and Hodgson (14). These students were seen as outpatients in the Neuropsychiatric Department of the Student Health Clinic of the University of Wisconsin. Six were males; two were females. Their ages were from eighteen to thirty years. None was cognizant of the nature or the expected effects of the medication administered. Three patients received concomitant superficial psychotherapy; five received none. All of the cases were chronic ones. Some dated their symptoms as far back as they could remember. The onset in no case was after puberty. In general this could be termed an intellectually superior group. All were single except one, the oldest, a male of thirty

years, who married soon after the termination of treatment.

METHOD OF TREATMENT

Medication consisted in the concurrent exhibition of belladonna alkaloids and amphetamine sulfate. The effect of the former drugs upon the latter is such as to change its pharmacological actions. This has already been reported in regard to the influence of large doses of atropine sulfate with amphetamine sulfate upon the blood pressure of human subjects (10). In brief, Table 1, which presents our results demonstrated by a normal control group (college and medical students, and laboratory technicians), of a comparable age distribution to the clinical cases, to be discussed in this report, reveals that the addition of atropine sulfate to amphetamine sulfate removes the unpleasant side-effects, such as *insomnia*, palpitations, irritability, apprehension, tension, vasomotor symptoms, etc., of the latter drug. The doses of atropine sulfate administered to the control subjects, recorded in Table 1, were such as to abolish not only unpleasant symptoms due to the designated doses of amphetamine sulfate, but also the more pleasant one associated with smaller quantities of this latter drug. When smaller amounts of atropine sulfate were given, with the same doses of amphetamine sulfate, the resultant sensations were of a pleasant character (alertness, abundant energy, etc.). Powdered extract of belladonna produced similar total or subtotal removal of amphetamine sulfate side-effects, in direct relationship to the quantity of the former drug added to the latter.

The doses administered to the clinical group consisted in a basic optimal amount of amphetamine sulfate, of 2.5 mgm., three, rarely four times a day. To each dose was added $\frac{1}{8}$ to $\frac{1}{4}$ grain powdered extract of belladonna, or $\frac{1}{16}$ to $\frac{1}{8}$ grain atropine sulfate. Adjustment of dosage is simple and a therapeutic endpoint is reached as soon as the patient notes a very dry mouth. Tolerance to the alkaloids obviates this symptom within a few days. It is unnecessary to increase the medication to the point of cycloplegia.

¹ Supplied by the Smith, Kline and French Laboratories, Philadelphia, Pa.

² Supplied by Eli Lilly and Company, Indianapolis, Indiana.

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⁴ From the Department of Neuropsychiatry, University of Wisconsin Medical School, Madison, Wisconsin.

CASE REPORTS

Case 1. A. L., Female, 23 years. Clinical impressions: Schizophrenia. The history was a chronic one dating from early childhood. As a child, she was a severe behaviour problem, exhibited strong sadistic tendencies, seclusiveness and early rejection of both parents. Her high school scholastic record was good, but socially she continued to make a very poor adjustment. For the past four years, she had been treated by several psychiatrists and had received electric shock therapy, without much response. When first seen in

Objective: somewhat more spontaneous, less emotionally flat, talked more freely, accepted advice and carried out suggestions more readily.

After three months, medication was withdrawn for ten days. The patient reported, after this period, that she was "more easily depressed, more irritable, seclusive, did not get along with people as well, and that thinking was not as clear and was often blocked." Controlled medication with amphetamine sulfate alone further intensified the symptoms and to them added insomnia and tension effects. Combined medication was reinstated with a return of the antecedent ameliorative effects.

TABLE 1

Case	Sex	Age	Dose of amphetamine sulfate (T.I.D., a.c.) required to produce unpleasant symptoms		Dose of atropine sulf. required to be added to ¹ to remove all symptoms	
			Dose	All symptoms reported	Dose	All symptoms reported
			mgm.		gr.	
1	M	28	5.0	Muscular weakness, sweating, tremor of hands, tense, insomnia	1/75	Dry mouth only
2	F	21	5.0	Apprehensive, anxious, insomnia	1/75	Dry mouth only
3	M	24	5.0	Weakness, fatigue, headache, insomnia	1/75	Dry mouth only
4	F	23	5.0	Irritable, chilly sensations, sweating, apprehensive, insomnia	1/100	Slightly dry mouth only
5	M	24	5.0	Depressed, restless, insomnia	1/100	Dry mouth only
6	M	24	5.0	Warm, sweating, apprehensive, tremor of hands, insomnia	1/150	Dry mouth only
7	M	25	5.0	"Hot flashes", sweating, tremors of hands, tense, hyperactive, insomnia	1/150	Dry mouth only
8	M	23	5.0	Slightly anxious, warm, tense	1/150	Dry mouth only
9	F	20	7.5	Anxious, apprehensive, unusually alert, insomnia	1/100	Dry mouth only
10	F	18	2.5	Tense, apprehensive, insomnia	1/150	None
11	M	21	10.0	Tense, irritable, apprehensive	1/100	Dry mouth only
12	F	20	5.0	Insomnia	1/150	Dry mouth only
13	F	21	5.0	Headache, palpitations, unusually alert	1/150	Dry mouth only
14	F	21	5.0	Hyperactive, insomnia	1/75	Dry mouth only
15	F	20	7.5	"Hot and cold" sensations, nervous, tense	1/150	Dry mouth only
16	F	25	2.5	Warm, palpitations, insomnia	1/150	None
17	F	22	10.0	Apprehensive, chilly and weak sensations, insomnia	1/100	Dry mouth only

The various doses of these drugs were administered in capsules of identical appearance and interspersed with placebos. None of the subjects reported symptoms following ingestion of placebos. All doses were exhibited at least twice in order to validate any reported effect.

¹ Dose of amphetamine sulfate (T.I.D., a.c.) required to produce unpleasant symptoms.

the Department of Student Health, six months before, the patient exhibited some signs of slight deterioration. She was evasive, seclusive, complained of great difficulty in concentrating, depressed episodes, inability to adjust socially and a lack of self confidence insofar as her studies and social intercourse were concerned.

The combined medication was commenced five months before this report and produced the following results. *Subjective:* she was much less depressed and irritable. There was somewhat better ability to study, memorize and sustain concentration, and somewhat greater drive. She felt less seclusive and was actively more sociable. She stated that thinking was clearer and less obstructed by autistic material and blocking.

Although the subjective improvement was greater than the objective change, neither was of large magnitude and at no time was the patient manifestly normal in her behaviour. However, the striking fact was that she was very much happier, less depressed and frustrated generally, that her scholastic record was improved and she felt that she was at last accomplishing something worth while.

Case 2. Male, C. E., 30 years. Clinical impression: Regression neurosis, schizoid type. When this patient was first seen six months before this report, he was quite confused, very untidy in his dress, emotionally restricted, circumstantial and devoid of spontaneity and energy. He complained of inability to think clearly,

carry on sustained physical or mental activity, especially the latter. Other chronic symptoms included much daydreaming, episodes of dereism, erective impotence, seclusiveness, constant procrastination and feelings of frustration and depression, lack of self-confidence, and insomnia. The patient was very preoccupied with sexual matters and conflicts were present over chronic and frequent masturbation. Psychotherapy was instituted with little success. After one month it was necessary to withdraw from school. He continued to come to the clinic for another month. At the end of this period his condition had improved somewhat, but he was generally quite despondent about his own future, and insight was still minimal. During this time, amphetamine sulfate, phenobarbital and bromides had been administered. All three drugs had little effect upon the symptoms, the first producing insomnia and tension effects.

After two months, the combined amphetamine sulfate and atropine sulfate medication was administered. Within two weeks, masturbation and sexual preoccupation ceased. The patient was soon able to obtain and hold a good job. The remaining symptoms rather rapidly became reduced. Social activities increased as he gained self-confidence. Following the termination of therapy, three months later, the patient had married and made a very satisfactory sexual and social adjustment. At the time of writing he had no complaints and was very happy. His energy output was satisfactory. He was emotionally spontaneous and intellectually alert. Insight was still minimal regarding the deeper psychological factors involved, and objectively he still reflected to a minor degree certain schizoid characteristics.

Case 3. S. P., female, 20 years. Clinical impression: Regression neurosis, schizoid type. The early history indicated rejection of both parents. The patient was seclusive, demonstrating a behaviour problem as a child. Her dreams still continued to reflect hostility towards both parents and also showed latent homosexual tendencies. There was an absence of normal transference towards members of either sex, in spite of several affairs with men with whom she lived for varying periods before coming to the University. She was highly intelligent and oversensitive. When first seen, she complained of inability to concentrate, of excessive vivid daydreams, episodes of dereism in which people's faces became "strange and repulsive, sometimes dead . . . when they look dead, I can smell a funeral and dead bodies." She spent much of her time cogitating upon the "purpose of life" and upon suicide, and was sexually preoccupied. She was quite suspicious and stated that she disliked and distrusted most individuals. Her behaviour reflected moderate restriction of affect, lack of spontaneity, a very pessimistic attitude in general and a definite inability to think objectively. Insight was and continued to be minimal into the deeper factors involved.

The combined medication was instituted two and a half months before this report. Within four days, she stated that she felt calmer and more contented. At the end of two weeks, she was no longer preoccupied by sexual ideation or day dreams and it was correspondingly

easier for her to study. Dereistic episodes no longer occurred. Psychotherapy was instituted at this time but limited merely to a discussion of study habits and future plans. At the time of writing, she is alert, emotionally more labile, sociable and much happier. The regressive symptoms were no longer in evidence overtly, although careful questioning reveals the apparent submersion of the schizoid trends of which, however, those of a paranoid nature are completely absent.

Case 4. R. D., Male, 20 years. Clinical impression: Regression neurosis, schizoid type. An unattractive, sensitive, imaginative, intelligent student who was the only one of seven siblings whose scholastic career had progressed beyond high-school. His early propensities for reading and seclusiveness were the subject of much criticism and often derision in a family of laborers and farmers. When first seen he stated that he had few happy childhood memories and that he greatly disliked returning home to his family, who had never encouraged him in his chosen profession, writing, for which, incidentally, he showed considerable talent. His general mood was not, however, one of depression. His chief complaints were inability to concentrate, excessive daydreaming, extreme preoccupation with sexual thought, which obstructed other mentation, and daily, often more frequent, masturbation for several years. At that time, he was emotionally restricted, grimaced frequently, was preoccupied and spoke in a rather rambling manner. Discussion revealed that he was irritable, intolerant and suffered from unsystematized ideas of reference and constant feelings of frustration.

Amphetamine sulfate and belladonna therapy was instituted, without psychotherapy, three months ago. The patient's response was rapid. Within three days, he stated that he felt somewhat calmer, was no longer as preoccupied with sexual thoughts. He felt less desire to masturbate, although he had done so on one occasion. He has not masturbated again since (no advice was given about this habit). After ten days of further improvement, amphetamine sulfate alone, in the same dosage, was administered. There was an immediate return of symptoms to almost the premedication level, with the addition of insomnia and irritability. It having been found that belladonna had a slightly sedative effect upon him, atropine sulfate was substituted for it with benefit.

At the time of this report, this patient was taking the combined medication once a day, it having been reduced gradually from three times a day without an increase in symptoms. His psychiatric condition was satisfactory. Heterosexual and social adjustments were no longer abnormal. He was alert, spontaneous and revealed a quiet sense of humour. He felt self-confident and optimistic. The passive, colorless attitude had disappeared; aggressive tendencies were exhibited in many spheres of activity. It was interesting to note that previously sadism and sexuality were the major themes of his short stories. Not only was this no longer the case, but he stated that he now wrote more freely and with a larger vocabulary. (This last point is of interest in its relation to the restricted vocabulary and semantic aberrations of schizophrenia.)

DISCUSSION OF THERAPEUTIC RESULTS

In analysing the detailed results, reproduced from the protocols in table 2, the following points

are of importance. This is a select group upon whom, with three exceptions, the diagnosis of regression neurosis, schizoid type, was made. Other neuroses, benign or malignant depressions

TABLE 2
Symptoms and Therapeutic Responses

Case.....	1 23 F ST	2 30 M RN	3 20 F RN	4 20 M RN	5 20 M ST	6 18 M RN	7 22 M RN	8 22 M SE
Clinical impression.....								
Inability to concentrate, study....	P	P	M	P	P	S		P
Response.....	+	+++	+++	+++	++	+++		+
Lack of self-confidence.....	P	P	M	P	P	M	P	P
Response.....	+	+++	++	+++	++	++	+++	++
Excessive daydreaming.....	P	P	M	P	M	M	S	M
Response.....	++	+++	++	+++	+	++	++	++
Labile mood fluctuation.....	P	P	M	P	M	S	M	M
Response.....	+	++	++	+++	++	+	++	+
Sexual preoccupation.....		P	P	P		P		
Response.....		+++	+++	+++		+++		
Irritability.....	P	M	S	M	P		S	
Response.....	++	+++	+++	+++	++		+++	
Tension symptoms.....	M	M	S	M	S	S	P	S
Response.....	+	++	++	+++	++	+++	++	+
Objective restriction of affect.....	P	M	M	M	M	M	M	M
Response.....	+	++	+++	+++	+	++	++	+
Lack of spontaneity.....	P	P	M	P	M	P	P	P
Response.....	+	+++	++	+++	++	++	+++	+
Confused thinking.....	P	P	M	P	P	S	S	M
Response.....	+	+++	+++	+++	+	++	++	+
Seclusiveness.....	P	P	M	P	M	M	P	P
Response.....	+	+++	++	+++	++	++	++	+
Intolerant attitudes.....	P	S	M	P	P	M	S	S
Response.....	+	++	++	+++	0	0	+	0
Unsocial attitudes.....	P	M	M	M	M	M	M	P
Responses.....	++	+++	+++	+++	++	+	++	+
Insomnia.....	S	P		S				
Response.....	+++	+++		+++				
Tendency to procrastination.....	P	P	S	P	P	S	S	P
Response.....	+	+++	+++	+++	++	++	++	+
Suicidal thoughts.....		S	M	M				
Response.....		+++	+++	+++				
Feelings of frustration.....	P	P	S	P	S		M	P
Response.....	++	+++	++	+++	0		++	++

TABLE 2—Continued

Case.....	1	2	3	4	5	6	7	8
Age.....	23	30	20	20	20	18	22	22
Sex.....	F	M	F	M	M	M	M	M
Clinical impression.....	ST	RN	RN	RN	ST	RN	RN	SE
Easy fatiguability.....	P	P		S				P
Response.....	++	+++		+++				++
Oversensitiveness.....	P	P	M	P	M	M	P	M
Response.....	+	+++	++	+++	+	+	++	+
Lack of ambition.....	P	M	M	M	M	P		P
Response.....	+	+++	++	+++	+	++		+
Excessive masturbation.....		P		P		P		
Response.....		+++		+++		+++		
Lack of objectivity.....	P	P	P	P	P	P	P	P
Response.....	0	+	+	++	0	0	++	0
Dereistic episodes.....		M	M			S		
Response.....		+++	+++			+++		
Paranoid tendencies.....	S		S	M		S	S	
Response.....	0		++	+++		++	++	
Heterosexual maladjustment.....	P	P		M	M		P	P
Response.....	0	+++		++	+		0	0
Blocking, subjective and objective.....	P	P		M	S	S	S	P
Response.....	+	+++		+++	0	++	++	+
Lack of aggressiveness.....	P	P	S	P	P		P	P
Response.....	+	++	0	+++	++		+++	0
Shyness, selfconsciousness.....	P	P	S	P	M		P	P
Response.....	+	++	++	++	+		++	0
Easily depressed.....	P	P	M	P	P	S	P	P
Response.....	++	+++	++	++	+	+++	++	+
Diffuse anxiety.....	S	P		M			P	M
Response.....	+	+++		+++			+++	+

Key: *Clinical impressions*: RN, regression neurosis; ST, schizophrenia, after electric shock therapy; SE, schizophrenia, early. *Symptom*: P, pronounced; M, mild-moderate; S, slight. *Response*: +++, excellent; ++, fair; +, slight; 0, none.

have been excluded from this series. Of the three cases of schizophrenia, none was frankly psychotic. Cases 1 and 5 had already received electric shock therapy, following definitely psychotic episodes, and neither had responded completely to this form of treatment. The third, case 8, was one of early schizophrenia. None of these three cases (1, 5 and 8) exhibited the pronounced objective improvement displayed by the regression neurosis group.

Objective evidence: This was obtained in every case. It was derived from as many sources as possible. These were, excluding those changes

noted by ourselves, parents, other physicians, the patients' friends and housefellows, scholastic grades and Rorschach tests.

Rorschach tests: The Harrower-Erickson Multiple Choice Test was employed (7). In brief, this test consists of the presentation to the patients of the Rorschach cards with a printed list of suggested responses to the outlines. Ten choices are offered for each card, five of which have been shown statistically to be "normal," popular responses. The remaining five answers, which include complete rejection of the outline, are considered "pathological," having been found to occur with

great frequency in various psychiatric conditions. The test is graded in terms of the number of the latter, pathological, responses given by the patient. "Alternate" choices are considered abnormal. The test is of both quantitative and qualitative diagnostic value. Four or more abnormal answers are considered to form an abnormal record. However, a qualitative estimate of the results is also important.

All of the patients, except case 1, received this test before therapy was commenced. Table 3 demonstrates the relative scores, before and after treatment. All except cases 4 and 8 gave over four abnormal responses at that time. These subjects exhibited only two. The former's record, at present, shows only normal responses, as do those of cases 3, 5 and 6. Those of cases 2, 7 and 8 show 1; case 1 shows 3 abnormal responses. Of especial interest are the tests performed upon case

TABLE 3

Harrower-Erickson multiple choice test—number of abnormal responses out of possible 10

Case	Before treatment	After treatment
1	Not tested	3
2	5	1
3	8	0
4	2	0
5	8	0
6	6	0
7	7	1
8	2	1

7. Before therapy, he gave seven pathological answers. Three days after combined amphetamine sulfate and belladonna medication was instituted, six such responses occurred. Five days later, he scored "4"; after eight, "3"; after ten days, "2". This score remained unchanged for fifteen days, notwithstanding symptomatic improvement. At that time, belladonna was withheld and amphetamine sulfate continued for four days. At the end of this period, during which there was an increase of symptoms, his test produced three abnormal responses. Belladonna was again added and in three days the score had dropped to "2". Within one week, this had decreased to "1", at which point it has remained. At no time did this patient receive active psychotherapy or an explanation of the purpose of the tests. He was merely asked to return regularly to the clinic, "in order that his medication could be regulated."

Subjective response: Table 4 reveals the fact that in general the subjective response was greater than the objective signs of improvement. Similarly, the former changes were noted earlier than the

latter. Patients usually reported salutary effects of the medication within two or three days. Thereafter there was a gradual improvement, an increasing sense of well-being, which never approached pathological proportions. After about six to ten weeks, but usually not before, medication

TABLE 4

Relative responses to combined amphetamine sulfate and belladonna alkaloid therapy; to amphetamine sulfate alone

Case	Response to combined amphetamine sulfate and belladonna alkaloid medication	Response to amphetamine sulfate alone
1	Objective: fair Subjective: good	Fluctuating increase of symptoms; tension, insomnia
2	Objective: good Subjective: good	Immediate increase of symptoms; tension, insomnia
3	Objective: good Subjective: good	Not administered*
4	Objective: excellent Subjective: excellent	Immediate increase of symptoms; tension, insomnia
5	Objective: fair Subjective: good	Not administered*
6	Objective: good Subjective: good	Immediate increase of symptoms only
7	Objective: good Subjective: excellent	Immediate increase of symptoms only
8	Objective: fair Subjective: good	Immediate increase of symptoms; tension

* The risk of a return of symptoms, with Amphetamine sulfate alone, could not be taken in Cases 3 and 5 because of their precarious scholastic standing.

could be gradually reduced without a return of symptoms.

All of these patients have written detailed reports of the changes which they noted during and following pharmacotherapy. They were instructed merely to return, at the next conference, with such a description. No suggestions were given as to its content. Paramount in all of these reports were the statements that the patient felt

"much happier and alert," could at last "think clearly, concentrate," no longer "worried over so many things" and was "enjoying life." A review of table 2 also reveals several facts which are at variance with the findings of previous investigators on the effects of amphetamine sulfate medication alone. Paranoid tendencies were reduced, whereas amphetamine sulfate has been found to increase (5, 6) these feelings. All of the patients felt calmer and less tense; diffuse anxiety decreased or disappeared. Amphetamine sulfate alone is known frequently to have the opposite effect upon these symptoms (2, 6).

The combined medication also had beneficial effects upon excessive daydreaming, dereism, lack of self-confidence and aggression, inability to concentrate, easy fatigability and feelings of frustration. All of these and the remaining predominant symptoms are quantitatively evaluated in table 2. It is recognized that many of them are closely interrelated and that the disruption of a vicious circle may occur with the removal of certain severe symptoms so that those remaining disappear as the patient is thereby able to become more readily integrated with his environment. The response to therapy of one of these "key" symptoms is especially interesting. It will be noted that cases 2, 3, 4 and 6 complained of excessive preoccupation with sexual ideation. The first and last two of these masturbated immoderately and were unable to stop this habit. After approximately two weeks of pharmacotherapy, these patients reported the absence of these symptoms. In none of these cases was suggestion or advice given pertinent to these complaints.

Objective response: Clinically this was evidenced by a gradual and sometimes almost complete disappearance of the schizoid coloring of the patient's behavior. The increasing spontaneity, clear and well-directed thinking, emotional responsiveness and general alertness were salutary changes noted in varying degrees in all patients. In most cases scholastic grades improved. Furthermore, it was with much less mental torment that the individual entered scholastic examinations. Other sources provided the information that the patients were "much easier to get along with," more sociable and approachable, and less irritable. The results of Rorschach testing have already been discussed.

Asialia: Table 5 reveals the fact that in all patients except case 1 there was a pronounced rapid improvement coincidental with the administration of sufficient belladonna alkaloid to produce a dry mouth. On three occasions, patients spontaneously stated that they felt a marked change within a few hours after this symptom had appeared. Hence the onset of asialia provides one

with a satisfactory end-point for the optimal belladonna alkaloid dosage. With the establishment of tolerance, this symptom disappears. It is unnecessary again to increase the intake of this drug. In two patients, the threshold for asialia was extremely close to that for cycloplegia and it was advisable, since these were students who had to read, to use a dose smaller than optimal for about a week in order to await tolerance, whereupon the dosage was increased. Ideally, the patient's mouth should be very dry during this

TABLE 5

1) The relationship between optimal belladonna alkaloid dosage and full therapeutic response and 2) Sedative effects of belladonna medication compared with atropine sulfate

Case	Relation of full therapeutic response to onset of "dry mouth" (asialia)	Complaint of sedative effect of pdr. ext. belladonna compared with atropine sulfate
1	Not noted	None
2	Marked improvement when increased atropine caused asialia	None
3	Moderate improvement when increased belladonna caused asialia	None
4	Marked improvement when increased atropine or belladonna caused asialia	Moderate
5	Moderate improvement when increased atropine or belladonna caused asialia	Moderate
6	Moderate improvement when increased atropine caused asialia	None
7	Marked improvement when increased belladonna caused asialia	None
8	Moderate improvement when increased atropine or belladonna caused asialia	Moderate

early period. This will obviate any confusion with the slight asialia which sometimes occurs when amphetamine alone is administered.

Belladonna or atropine sulfate: Powdered extract of belladonna appears to be the drug of choice during the early period of therapy. The preparation is economical and easily handled. It has been found that if the patient is given $\frac{1}{4}$ grain tablets with instructions to take one at each dose on the first day, and thereafter to add $\frac{1}{4}$ tablet on each succeeding day, until pronounced asialia occurs, that the optimal dosage is quickly found. It will be noted in table 5 that three patients complained of symptoms of sedation with this drug. These

complaints promptly disappeared when $\frac{1}{16}$ to $\frac{1}{8}$ grain of atropine sulfate was substituted for the belladonna.

An alternate method of treatment has been used successfully since this paper was submitted. In view of the present difficulty in obtaining powdered extract of belladonna, grains $\frac{1}{4}$, tablets, the patients were instructed to take one dose of amphetamine sulfate, 2.5 milligrams, with powdered extract of belladonna, grains $\frac{1}{4}$, or atropine sulfate, grains $\frac{1}{16}$, before breakfast, on the first day. On the second day, this combined medication was taken before breakfast and before lunch. If no undue symptoms occurred on this day, three doses were prescribed before meals on the third day. Should the patient complain of excessive asialia or cycloplegia on the second day, this dosage was repeated on the third day. This repetition of doses was rarely necessary. Occasionally, two (before breakfast and lunch) doses of belladonna or atropine were sufficient to produce moderate asialia, and absence of tension symptoms throughout the day when three doses of amphetamine sulfate were taken.

Undesirable effects: Excluding the side-effects noted above, no signs of toxicity or habituation appeared in these cases, nor in the normal controls and other types of patients subjected to these drugs. Blood pressure and pulse rates of all patients were taken regularly. None exhibited significant changes from the premedication levels. No case demonstrated the tachyphylaxis which is often characteristic of continued amphetamine sulfate medication.

DISCUSSION

It is appropriate before these data are discussed that unsuccessful results with this form of therapy be examined. The combined amphetamine sulfate and belladonna alkaloid therapy has been employed without benefit on six paranoid, two hebephrenic, and two simple cases of schizophrenia. All of these were frankly psychotic individuals. Several cases of reactive depression and depressed, manic-depressive psychosis responded indifferently to this medication, and certainly no more than they did to control amphetamine sulfate therapy alone. None of this group had received antecedent shock therapy.

It appears from the foregoing exposition that those individuals suffering from regression neuroses, of a schizoid type, respond most favorably to this form of medication. As a possible precursor of schizophrenia, the regression neurosis may be viewed as a malignant condition. The patient who suffers from it exhibits increasing evidence of the ascendancy of withdrawal and frustration in a personality which is progressively incapable of

maintaining its integration in society. Insight is usually fairly intact into only the superficial abnormality of the symptoms which are often sufficiently intellectually and emotionally disabling to cause the patient much unhappiness until complete dissociation may take place.

Since the adequate study of pathological physiology of the related malignant regression states has been limited to that of schizophrenia, one may only postulate by inference the pharmacodynamics involved in this form of therapy. Amphetamine sulfate is considered to have a stimulating effect upon the hypothalamic structures, and perhaps the cortex, and the psychological results of this action are no doubt demonstrated in the release and expression of aggressive tendencies in behaviour problem children (1, 9). There is much to suggest that the dissociative symptoms of schizophrenia are due not only to an imbalance between cortical and hypothalamic functions, but also the autonomic equilibratory activities of the latter structure may be abnormal. An accumulation of experimental evidence supports the hypothesis that the relation between so-called sympathetic and parasympathetic (vago-insulin) functions frequently approaches pathological dimensions in schizophrenia. It has been demonstrated that not only is the sympathicoadrenal system apparently hypoactive, but the vago-insulin system is hyperactive (3, 5). It is felt that this last abnormality is of some consequence in contributing to the well-known abnormal physiological responses of the schizophrenic. Hence, empirically, one might consider that the administration of two drugs, one which would stimulate the "sympathetic centers," and the other suppress vago-insulin activity, might temporarily establish an equilibrium between these two interrelated divisions of the autonomic nervous system, and thereby, by their cortical relationship, evoke psychosomatic responses which would permit the patient more effectively to establish normal social relationships. Both of the drugs chosen are believed to produce these appropriate actions upon the autonomic nervous system from central nuclei to end organs. It has already been demonstrated that atropine enhances the sympathetic effect of amphetamine sulfate (10). It is not only interesting but convenient that the hyperasialia of schizophrenia (13) permits one to establish an optimal dosage with this combined medication.

However, the foregoing hypothesis may be criticized on the following issues. Amphetamine sulfate certainly stimulates structures in the hypothalamus and other regions additional to those solely concerned with sympathicoadrenal action. It is believed, however, that its presumably para-

sympathicomimetic action is offset somewhat by the inhibitory effect of the drug upon the carotid sinus (11) and certainly more actively by the action of the belladonna alkaloids upon the central and peripheral components of the parasympathetic system. The second and obvious objection is revealed by the fact that typical cases of developed schizophrenia have not responded to this form of medication. However, it is theoretically possible that the regression neuroses typify a psychiatric disorder associated with autonomic imbalance qualitatively similar to that of schizophrenia, differing, however, in that it is reversible and hence beneficially affected by this medication. It has been observed that the greater the regression and dissociation present, the closer one approaches the more fixed condition of schizophrenia and the less is the response to this type of "autonomic" pharmacotherapy. Therefore, apparently, only a "larval" form of schizophrenia is susceptible to treatment. It is hoped, therefore, that this therapy may not only be of immediate value in the treatment of regression neuroses and certain cases of schizophrenia which have received shock therapy but also reveal prophylactic potentialities.

In conclusion, it should be stated that several additional cases of regression neurosis have responded very favorably to the combined medication with concomitant psychotherapy. These have not received treatment for a long enough period to justify inclusion in this report. They do, however, demonstrate the fact that this medication greatly facilitates the psychotherapy of this clinical group.

Finally, it was believed that the theoretical considerations discussed above warranted the addition of atropine sulfate and amphetamine sulfate to the existing electric shock therapy techniques. A large group of affective and schizophrenic psychotics is at present receiving this form of shock treatment.

SUMMARY

A group of eight patients were treated with combined amphetamine sulfate and belladonna alkaloid medication. Five of these represented regression neuroses, schizoid type, two were schizophrenics who had already received electric shock therapy, and one was an early schizophrenic.

Pronounced objective and subjective improvement was noted in all of the regression neuroses. The remaining patients were benefited but not to as great a degree. The results of Rorschach tests paralleled, in general, the beneficial clinical changes.

Aggressive tendencies, improved social adjustment, increased energy output and a sense of well being replaced those symptoms referable to with-

drawal, lack of energy and self-confidence, sexual and emotional abnormalities and feelings of frustration.

The optimal belladonna alkaloid dosage was found to occur coincidentally with the onset of asialia.

No signs of habituation, tachyphylaxis, or toxic effects of the medication were noted.

Cases of reactive (benign) depression, manic-depressive, depressed psychosis and developed simple, hebephrenic and paranoid schizophrenia have not responded to this therapy.

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THE EFFECT OF MENTAL ACTIVITY ON THE INCIDENCE OF SEIZURES AND THE ELECTROENCEPHALOGRAPHIC PATTERN IN SOME EPILEPTICS

WITH REMARKS ON THE INFLUENCE OF AMPHETAMINE SULFATE

HANS STRAUSS, M.D.¹

Numerous publications have described psychic factors as initiating epileptic attacks. Little has been said about the inhibiting influence of mental activity upon these attacks. Nevertheless, such inhibition is not rare and should be looked for more carefully because of its practical therapeutic importance. This paper presents both clinical observations and an unusual type of electroencephalographic pattern, which shows clearly the influence of mental activity upon the abnormal record.

CASE HISTORIES

Case 1. M. S., a white male, aged 10. The patient's mother suffered from grand and petit mal attacks as a child. Neither a detailed history nor an electroencephalogram could be obtained as the mother was very reluctant to discuss her previous disorder.

The patient's medical history was negative except for measles at the age of 5 years. He was an excellent student with an I.Q. of 140, and was recently transferred to a special class for highly gifted children. There was no behavior disorder of any kind. General physical and neurological examination were entirely negative.

At the age of 8½ years he had the first petit mal attack. At the age of 10 he had at least 2, mostly 3 and 4, petit mal attacks every day. These attacks lasted a few seconds during which the patient was irresponsive and motionless except for rolling his eyes upwards. There was complete amnesia for the attack. No attacks occurred when the patient was busy with something in which he was interested. He had no attacks in school and during physical exercises but the attacks occurred when he was at home doing odd jobs or just passing the time with reading or playing.

The patient had previously been treated with dilantin sodium gr. 1½ t.i.d. and phenobarbital gr. ¼ q.i.d. without success.

The first electroencephalogram was taken with 2 frontal, 2 central, 2 occipital electrodes and one vertex electrode. The alpha waves showed frequencies close to 11 per second with a maximum voltage of 50 microvolts in fronto-occipital leads. Records with these leads and the eyes closed showed extremely numerous runs of 3 per second activity with a voltage up to 130 microvolts. These runs lasted as long as 10 seconds without any interruption. Periods free from delta activity were short, never longer than 6 seconds. The percentage of length of record occupied by delta ac-

tivity was 71 per cent. All the records from the occipital region showed these characteristics (fig. 1b and fig. 2). Records from the frontal and central regions showed only occasional short bursts of 3 per second activity. The percentage of total length of record occupied by 3 per second activity was not higher than 10 per cent (fig. 1a). Hyperventilation induced continuous 3 per second activity in fronto-occipital leads and repeated bursts of spike wave pattern with a frequency of 3 per second and a duration up to 7 seconds (fig. 1c). Frequently these bursts could be ended by calling the patient by his name.

If records were taken from the occipital region and the patient opened his eyes, the delta activity disappeared and the record showed occasional short runs of alpha activity on a background of low voltage random activity (fig. 1b). When, with the eyes closed, the patient was asked to solve some mental problem, e.g. an arithmetic example, the delta activity disappeared and was replaced by almost continuous alpha activity (fig. 2). After closing the eyes again or after solution of the given problem, the previous delta activity returned after 4 to 20 seconds.

The patient was given dilantin sodium gr. 1½ at night and amphetamine sulfate doses which were gradually increased to 10 mgms. t.i.d. With this medication there was considerable improvement. There was never more than one attack on any one day and there were often 2 to 3 days and once a period of three weeks without an attack. In addition the attacks were shorter than before.

Electroencephalograms, taken 7 months after the beginning of treatment and later, showed under standard conditions (relaxed and eyes closed) only rare bursts of delta activity with the highest amount of delta activity observed in any one record occupying 20 per cent of the total length of record. There were periods as long as 35 seconds without delta activity.

Case 2. T. P., a white male, aged 11, had no family history of epilepsy or related disorders. The medical history was negative except for the common childhood infections. However, he had been wetting and soiling his bed until ½ year before, had been very difficult at home, very restless and a feeding problem. It had always been difficult to keep his attention on any one object for any length of time.

Since the age of 9 he had been suffering from spells during which he was unconscious and for which he had amnesia. He was usually motionless, although he sometimes showed rubbing movements. The attacks lasted 17 to 30 seconds, as determined by the electroencephalogram. If the patient was called by his name

¹ From the Neurological Service of Dr. I. S. Wechsler, The Mount Sinai Hospital, New York City.

during the attack, it could frequently be ended immediately, this however never in the early periods of the attack but only after it had lasted at least 17 seconds. The attacks occurred at least once an hour, sometimes every few minutes. While on his Christmas vacation in the company of many other children the patient had no attack for 2 weeks.

The electroencephalogram showed the same characteristics and reactions as that of Case 1. The alpha frequency varied between 9 and 11 per second.

There was no chance to further observe this patient.

The patient had his first and only grand mal attack at the age of 13½ years. For one week after the attack he complained of dizziness and periods during which "everything went black."

The electroencephalogram showed the same characteristics as that of case 1 with the following exceptions: 1) the alpha waves showed frequencies close to 8.5; 2) the frequency of the slow, high voltage waves was not stable at 3 per second but varied between 3 and 4 per second; 3) no spike wave pattern was observed at rest or during hyperventilation. The reactions to

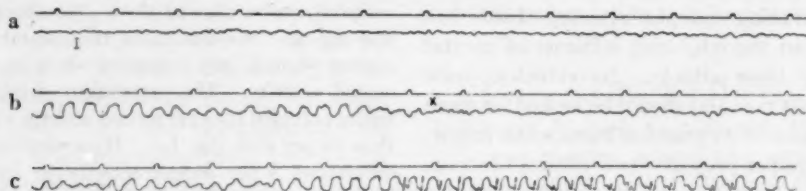


FIG. 1. Case 1. Time marking indicates one second. Calibration equals 100 microvolts. a) Fronto-vertex lead. b) Fronto-occipital lead. At X the eyes were opened. c) Fronto-occipital lead during hyperventilation.

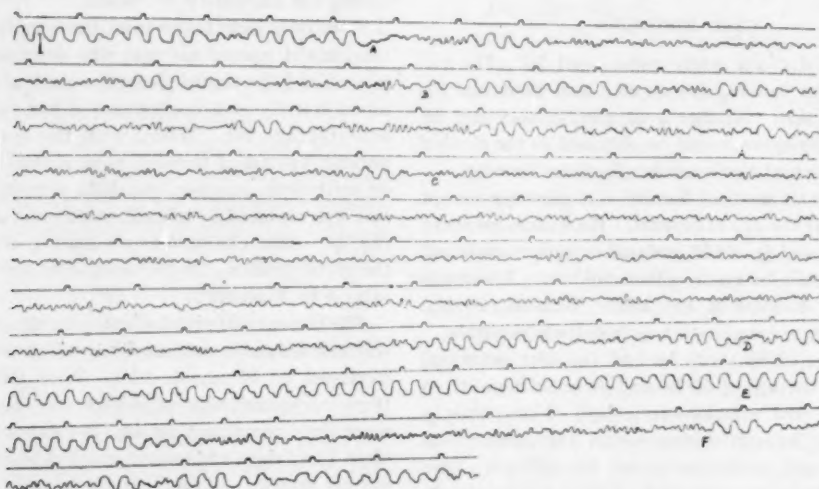


FIG. 2. Case 1. Continuous recording with occipito-vertex lead. Time marking indicates one second. Calibration equals 200 microvolts. A) Add 80 and 53. B) Answer—133. C) Subtract 7 from 100 and again 7 from the result, etc. D) Stop and relax. E) 100:7. F) Answer—14.

COMMENT

The electroencephalographic pattern. The electroencephalograms of these two cases have in common the almost continuous high voltage, slow activity from the occipital lobes under standard resting conditions, with the suppression of this activity by opening of the eyes and mental activity. Records with the same characteristics were found in two more cases.

Case 3. J. F., a white male aged 14, was observed at the Neurological Clinic of the Mount Sinai Hospital, from Dec. 1942 to March 1943. The patient's father suffered from rare attacks of grand mal epilepsy. The history was negative except for the common infections of childhood. There were no psychiatric abnormalities.

mental activity and opening of the eyes were the same as in case 1. Flashing a light on the closed eyelids had the same effect as opening of the eyes. The percentage of length of record occupied by delta activity was 56 at rest with the eyes closed. After the patient was given 10 mgm. amphetamine sulfate intravenously, the delta activity was reduced considerably for the next 10 minutes, the percentage of length of record occupied by delta activity being 10 per cent for the 2 minutes following the injection.

Case 4. A. P., a white male, aged 6, was observed on the Neurological Service of the Mount Sinai Hospital from February to March 1943. The patient had the first grand mal attack one year before. Since that time he had 5 to 6 attacks. At the time of the electroencephalogram he had been free from attacks for more than 6 weeks, after receiving phenobarbital gr. ½ t.i.d.

The characteristics of the electroencephalogram were the same as in case 1 with the following exceptions: 1) the alpha frequency varied from 7.5 to 9 per second; 2) the frequency of the high voltage slow waves was variable from 3 to 3.5 per second, usually closer to 3.5 per second, and there were also bursts of high voltage 6 per second activity; 3) no spike wave pattern was observed at rest and during hyperventilation. Intravenous injection of 5 mgm. amphetamine sulfate did not have any appreciable effect on the record.

The fact that only 4 cases with this type of record were found among more than 400 cases of epilepsy shows that this type of record is rare. The literature contains similar but, as far as reviewed, no identical observations. Gibbs and Gibbs (7) describe a case in which the spike wave pattern appeared from the occipital region only and was suppressed when the eyes were opened. Lennox, Gibbs and Gibbs (17, 7) and Jung describe the suppression of non-localized spike wave formations by focusing of the attention.

The interseizure pattern was very similar in all the cases, although the symptoms were very different. Two patients had frequent petit mal attacks; they showed the spike wave pattern during the overt attack and may be classified as cases of pyknolepsy. Two patients had only rare grand mal attacks. The two cases with petit mal attacks showed slow activity of a very well fixed constant frequency of almost 3 per second, the other 2 cases showed some variability in the frequency of the delta waves. Whether this is a significant difference, can only be decided after observation of additional cases. However, the appearance of quite different clinical pictures in cases with almost identical interseizure records should warn against making the diagnosis of a certain type of attack from such interseizure records (cf. Jasper and Kershman, Finley and Dynes).

THE INFLUENCE OF MENTAL AND EMOTIONAL FACTORS UPON THE OCCURRENCE OF EPILEPTIC ATTACKS

The influence of mental and emotional factors upon the epileptic manifestations has been frequently discussed. Numerous publications describe the provocation of epileptic attacks by psychic influences or even claim epilepsy as a psychogenic disease (Clark, Cobb, Diethelm, Gowers, Fremont-Smith, Jelliffe, Lennox and Cobb, Levin, Marsh, Massermann, Rows and Bond, Westphal). The literature on reflex epilepsy (Strauss) and affect-epilepsy (Notkin) gives additional examples of the provocation of epileptic attacks by stimuli affecting the mental and emotional sphere. The relationship of sleep to the occurrence of epileptic attacks has been discussed frequently (Magnussen).

On the other hand, the inhibiting influence of mental activity on epileptic attacks is mentioned only rarely. No mention is made in numerous text books and hand books of neurology (Nonne, Hartmann and di Gasperro, Redlich, Grinker, Jelliffe and White, Wechsler, Wilson). Only Lennox, Gibbs and Gibbs (16, 17, 7) and Jung point to the inhibiting influence of attention, emotion and sensory stimuli upon epileptic manifestations. Cases with this effect are certainly much more numerous than it may appear from these rare references.

In line with this thought it was a rule of the late Otfried Foerster that complete silence was to be maintained during the hyperventilation of a patient, since he believed that sensory stimuli might prevent the occurrence of the desired attack.

Another case in support of this viewpoint was a patient I saw years ago. This man had numerous grand mal seizures following a skull fracture with cerebral concussion after a fall from a flying trapeze (he was a trapeze artist). However, as a result of his observations as to the frequency and time of his attacks, he continued in his dangerous occupation knowing that he never had an attack while performing, but only when at rest.

The influence of activity on petit mal seizures is particularly evident from the history of cases 1 and 2. There were many other patients who showed this influence. One of them had an average of 6 to 7 petit mal attacks a day. While he went to college, he had them regularly during classes in history and geography, two subjects which he disliked, while attacks never occurred during classes in physics and chemistry, subjects which he liked very much. He never had an attack while attending a baseball game but attacks occurred every day when the patient was sitting in an easy chair waiting for his dinner. Another patient going to High School had more attacks on Saturday and Sunday than on any other day. He liked to go to school and was a very good student. When playing baseball he never had an attack while on the field but only when not active in the game. I also know many epileptics who never had an attack while swimming.

The possibility that these effects are mediated by humoral and vasomotor mechanisms can not be denied. But the immediate influence of mental activity upon the electroencephalogram in cases 1-4 suggests that direct cerebral mechanisms are responsible.

THERAPEUTIC POSSIBILITIES: INCLUDING THE USE OF AMPHETAMINE SULFATE

It is evident that the beneficial effect of mental activity can be used as a therapeutic aid in these

cases. Contrary to the tendency of many relatives and doctors to restrict the activities of such patients to the utmost, they should be given a type of occupation which they really like and which captures their attention. This will not only make them happier and prevent them from becoming egocentric hypochondriacs, but will also diminish the number of their attacks. In the case of the college student mentioned above, the attacks became extremely rare and there were periods of more than one week without a single attack, after he had graduated from college and entered the profession which he had chosen.

Fatigue is one of the factors which suppresses interest and attention and leads toward a state of bored and often morose inactivity. It is probably in this way that fatigue helps to bring on attacks in these patients. Therefore, any appreciable degree of fatigue should be prevented; these patients should have sufficient sleep at night and when tired should go to bed rather than sit around.

Amphetamine sulfate is a drug which is particularly useful in helping to avoid fatigue and stimulating mental activity. This is most probably the cause for its favorable effect in case 1. Three more cases of petit mal epilepsy showed the same result after treatment with amphetamine sulfate. Another such case was described by Golla, Graham and Walter. Not all the cases reacting favorably to amphetamine sulfate showed the same type of electroencephalogram, nor did all the cases in which mental activity decreased the number of attacks, react favorably to amphetamine sulfate. This may mean that this drug is only effective when the lack of mental activity is due to fatigue and not to other factors.

In any case it is felt that amphetamine sulfate treatment should be tried in cases with pyknolepsy and petit mal epilepsy, particularly in cases showing a favorable influence of mental activity. This can be recommended without hesitation as no increase in the number of attacks (grand mal and petit mal) has been observed in any case after this medication (Cohen and Myerson).

If this type of therapy relieves only a few more patients with petit mal epilepsy it offers an additional remedy for a type of seizure, the treatment of which with the usual antiepileptic drugs and dietetic measures does not bring the desired success in many cases (Owen and Berlinrood).

Wechsler described the favorable effect of ephedrine on petit mal attacks with autonomic symptoms. This is an example of how close observation of the peculiarities of the attack may lead to an effective therapy where the traditional treatment fails. This paper gives another example of this type of approach.

SUMMARY

Cases showing the inhibiting influence of mental activity upon epileptic attacks, particularly petit mal attacks, are described. An unusual type of electroencephalogram and its changes during mental activity are presented.

The favorable influence of mental hygiene and amphetamine sulfate are discussed.

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ABSTRACT AND CATEGORICAL BEHAVIOR FOLLOWING THERAPEUTIC BRAIN SURGERY

GEORGE W. KISKER¹

When therapeutic bilateral prefrontal lobotomy was instituted at the Columbus State Hospital in September, 1941, it was decided that extensive preoperative and postoperative psychological examination would be carried out in every case. This program was undertaken, and, with the help of staff physicians, nurses, attendants, and other personnel, it became possible to obtain a daily running account of the behavior of twenty patients for periods ranging from one to twelve postoperative months. In order to supplement our clinical notes, each patient was further subjected to a variety of standardized psychological testing procedures designed to sample behavior at various levels of complexity. The present account is directed toward some of the more general problems and findings related to our use of tests of abstract and categorical behavior.

The primary impetus to the investigation of the conceptual processes of patients presenting brain injuries can be traced to the observations made on brain lesion cases during World War I. At that time, a number of such cases showed various behavioral modifications, including disturbances in the abstraction processes. It was shown that patients with cerebral lesions show a striking loss of the conceptual approach to reality. Such patients tend to think in concrete, rather than abstract, terms. The abstract attitude is essentially conceptual and categorical. It is highly symbolic. The concrete attitude, on the contrary, is closer to the world of reality. It deals with the more apparent physical qualities of things. While the normal individual is able to assume the concrete or abstract attitude according to the dictates of the situation, the brain patient finds himself restricted to concrete, situational thinking. Vigotsky (11) and Kasanin and Hanfmann (7) found that this reduction in conceptual thinking is also characteristic of schizophrenic processes. Bolles and Goldstein (1), and Cameron (2), came to this same conclusion although using methods differing from those employed by Vigotsky. In this same connection, Goldstein and Katz (4) showed that patients suffering from Pick's disease, which is primarily an involvement of the frontal lobes, are incapable of abstract behavior even though elementary mental performances such as sensory

perception, memory, and attention, remain intact. A further characteristic of the brain lesion patient is his inability to categorize, or to shift from one orientation to another. When the abstract processes are impaired, the individual has difficulty in seeing the possibility of more than one solution to a problem. He is unable to deal with hypothetical situations. This inability has been shown very clearly by Weigl (12) who found that when such patients are given the task of sorting multi-colored geometric figures, and the sorting takes place either on the basis of color or shape, they are unable to re-sort them on the basis of the other factor. The normal individual has no trouble in breaking down the shape-set or color-set, while the brain patient finds it impossible or extremely difficult to destroy an established set and create a new one. The degree of intelligence of the subject evidently does not play an important role in these adjustment difficulties. Halstead (5) has shown that a person with a high Binet score and a normal Rorschach may nevertheless show a disturbance of categorical behavior, while Nichols and Hunt (9) found such disturbance in a bilateral lobectomy patient with an intelligence quotient of 120. Goldstein (3) has gone so far as to suggest that all mental disturbance accompanying frontal lobe lesion is basically a function of the absence of an abstract attitude. Disabilities in thinking, acting, feeling, attention, volition, and space and time orientation can, according to Goldstein, be reduced to this single factor.

In order to test this hypothesis, and to satisfy ourselves as to the degree and nature of possible abstract impairment following bilateral prefrontal lobotomy, we carried out a series of experiments designed to allow us to evaluate pre-operative and post-operative abstract and categorical behavior. In our first experiments, we made use of a modified form of the Kohs Block Design test which consists of sixteen multi-colored blocks which are to be manipulated in such a way as to reproduce a series of card designs. The present work follows, to some degree, that of Bolles and Goldstein (1) and Nadel (8). Wherever possible, our patients were tested in the pre-operative interval and again at intervals during the post-operative course. Both general and specific test behavior was analyzed with the object of determining significant variations from

¹ Columbus State Hospital, Columbus, Ohio.

the normal pattern. Goldstein believes that the principal cause of failure on this test is the inability of the patient to abstract the design from the size and from a given configuration. Huttor (6) taking a diametrically opposed point of view, disagrees and says that the failure is due to over-abstractation. The patient is forced to deal, at once, with the design, the arbitrarily chosen parts of the design, and his own preoccupation. He is preoccupied with other thoughts and is thus unable to attend to the task at hand. There is, in fact, an interference of the present percept with revived images. The patient fails because he is too abstract, not because his abstract attitude is impaired. In 1938, Nadel (8) attempted to analyze his frontal lesion cases for causes of failure in the test, and found a number of common elements, one of which appeared to be the impressiveness, or the insistence, of the "figure" of the design. Subjects became so interested in some particular aspect of the figure that the other figure-ground relationships were neglected. A second source of failure was the insistence of the color elements. Here, the subjects became extremely preoccupied with the color necessities, and design requirements were overlooked. Related to this difficulty was the inability to make use, simultaneously, of both color and position. In our series of cases, we were struck by the inability of our patients to handle color and position simultaneously. The element of color usually predominated in that correct color was sought more often in the presence of incorrect position than was the case in the reverse direction. In only one case did we observe a correct position response in the presence of an incorrect color response. Another factor leading to failure is the tendency of certain subjects to seek non-existent color combinations. Finally, there may be pronounced difficulty in shifting the frame of reference from one design to another. In this connection, one patient showed behavior of a most revealing nature, and completely in line with the ideas expressed by Goldstein, Weigl, Scheerer, and others. The patient had no trouble in copying Design I, but he was unable to copy the second design. Observation of his behavior and the nature of his spontaneous remarks indicated that he was unable to make the shift from the solid colored blocks used in Design I to the half-colored blocks used in Design II. He found himself faced with two red surfaced blocks and two blue surfaced blocks, and could not see how the design could be made. Finally he resorted to piling the blocks one upon the other in an effort to cut the bottom block diagonally. The half-color sides were quite visible and the examiner went so far as to place extra blocks on the table with the half-colored sides up. Even this very obvious move did not furnish him

with the necessary cue. After some time the examiner made the design with another set of blocks and placed it in front of the patient. He stared at it for a few moments and then expressed amazement that the examiner could create the design so readily. Suddenly he saw the possibility of turning his blocks and using the half-colored sides. He completed the design quickly and explained that he could not understand why so simple a design had given him so much trouble. He insisted that before his mental illness he had been quite inventive and ingenious, while now he frequently found himself puzzled by relatively easy problems. The post-operative clinical course in this case was in the direction of rapid improvement. Another patient had very little trouble in completing the designs, except for an excessive number of moves, even though clinically he showed relatively little improvement when compared with that of the previous patient. In other words, considering these two cases, the patient with the greatest degree of observable improvement showed a more fundamental impairment of abstract behavior than the patient who showed little clinical progress. Another interesting observation had to do with a patient who readily took the blocks and turned them over a few times and then scratched them with his fingernails. His expression remained apathetic and disinterested and, while he glanced at the sample cards, he made no effort to use the blocks in the formation of a design. Instead, he opened his mouth and attempted to put a block into it. Apparently he saw the block as *something to eat* rather than *something with which to make a design*. He was responding to the object in a most concrete fashion. Similarly, another patient insisted upon rolling the blocks like dice when examined immediately following the lobotomy. He rolled the blocks over and over again, snapping his fingers each time. When questioned, he indicated that he was trying to "roll out" the design. However he failed to recognize the correct combination of colors when he finally succeeded in rolling it. In this case as in the previous one, the patient was responding at a primitive, concrete level of behavior. When re-examined on the first post-operative day this patient no longer continued to show the compulsion to roll the cubes, although the reproduced designs were completely chaotic. Later in the post-operative course, the behavior on this test became somewhat more normal, although evidences of concreteness continued to dominate the picture. Analyzing the behavior of our several patients on the modified Kohs test, it appears that impaired performance is not a *necessary* concomitant of lobotomy even though it is frequently found in the post-operative course. Whenever such

impairment is present, it is observed that the patient is frequently satisfied with grossly incorrect designs and, occasionally, with improper color combinations. Many of the deficiencies already described by other investigators have been observed in our patients. It should be re-emphasized, however, that there were patients who showed marked clinical change without evidencing measurable alterations in the abstract functions.

In a second series of experiments, a modification of the Weigl-Scheerer-Goldstein Color-form Sorting Test was utilized both pre-operatively and post-operatively. In this test the patient is presented with twelve cut-out geometric figures of which four are equilateral triangles, four are circles and four are squares. One of each set is red, one is green, one is blue and one is yellow. The figures are presented to the patient in random order and the task is that of sorting them. Obviously there is the possibility of sorting the figures either on the basis of color or on the basis of form. In our work the test was modified to the extent of adding a set of four congruent ellipses. The addition of these figures increased the opportunity to study constructive tendencies and also made possible a third basis of sorting. The figures could now be sorted according to color, shape, or on the basis of curvilinear or straight lines. It was recognized, of course, that this third possibility is less efficient than the first two, and, in fact, none of our patients ever selected this principle upon which to make the differentiation. It was felt, however, that the addition of the ellipses would serve to facilitate the study of certain types of abnormal behavior patterns without materially altering the conditions set forth in previous studies. Our work with this test served to confirm the general findings already noted with respect to the Kohs Block Design Test. Specifically, those patients who showed evidence of impaired abstract behavior tended to use the several geometric pieces as parts of a design. They felt that they must "build" or "make" something out of the pieces. This tendency has been described as the "constructive" tendency. One patient showed this type of behavior very definitely in the pre-operative examination periods. He went so far as to identify one color with another in order to complete a satisfactory concrete situation. Thus after he had completed a design he commented, "This green represents red, doesn't it?" When asked what he meant, he said, "It could represent the tractor on the farm, couldn't it?" Here we have an excellent example of the compulsion toward representation. The design must be something concrete, it must have a meaning. In addition, this patient showed an inability to use other than the color-principle even when a clue to

the shape-principle was given in a very obvious manner. Once established, the set became extremely difficult to eradicate. The color-set also extends into other areas as well. This patient, for example, found it utterly unnecessary to utilize all of the figures which were presented to him. He apparently was able to reach satisfactory closure on the basis of one set of colors. Following the operation, there was a continuation of the inability to shift from one category to another. While he incorporated more elements in his designs and while he did not show an overt tendency to identify his designs with "things," still there was a high degree of consistency from one attempt to another, and the changes which did occur consisted largely of an elementary transposition of the parts of the design. Another patient showed this constructive tendency in both the pre-operative and post-operative periods although his post-operative ward behavior was very much improved. It is doubtful, however, whether there was an improvement in abstract behavior. In other patients the tendency toward construction was reflected in such comments as, "You can make a rose out of these," or "I don't know whether this is a quilt patch, or not." In those patients who showed impairment of abstract behavior, the following characteristics of abnormal concreteness were very much in evidence: sensory-domination of grouping behavior, patternization, lack of ability to know what was done, inability to generalize or to profit by obvious clues, identification with objects, inability to shift frame of reference, and rigidity of established set.

A third approach to the problem of abstract and categorical thinking impairment consisted in the use of a test of grouping behavior patterned after that suggested by the work of Vigotsky (11) and Halstead (5). Coinciding with our general program of psychological testing, each patient was tested, whenever possible, pre-operatively and at several post-operative intervals. The test used in this part of our work was made up of a series of sixty miscellaneous small objects of varying shape, material, texture, composition and color. These objects were placed on a specially constructed tray which made possible relatively comparable conditions for bed-patients and for up-patients. Having made certain that the patient could identify the various objects, instructions were given for the subject to group together those objects which appeared to belong together. Quite obviously there was the possibility of grouping the objects according to any one of a number of basic principles. Objects could be grouped on the basis of color, shape, use, brightness, material or other common characteristics. After the patient had indicated that he had completed the grouping process insofar

as he was able, the tray was covered and the subject was required to list all of the objects which he remembered. Following this test of recall, the grouped objects were again exposed to view and the examiner shifted objects from one group to another, asking whether such additions could be made. In each case the subject was questioned for his reasons for accepting or rejecting the addition of specific objects. As was the case with our other standardized tests, the psychotic nature of our subject-material combined with operative and post-operative casualties reduced the number of subjects available for reliable comparative study to a point where no attempt was made to make quantitative differentiations on the basis of age, sex, or diagnosis. The test material, however, was extremely valuable in gaining an overall impression of the post-operative behavioral characteristics of our patients.

The initial grouping of our subjects showed certain marked deviations from the normal pattern. As might be expected, considering the psychotic nature of our subjects, it was extremely difficult to gain and hold satisfactory rapport in the pre-operative period. Inattention and distraction, both subjective and external, combined to make the results of many of the pre-operative records of doubtful validity. Post-operatively, clinically improved patients showed some degree of improvement in the grouping test but there was a constant tendency to select relatively few test objects in the first spontaneous grouping. Halstead (5) observed a similar condition in his work with frontal brain lesion cases. Similarly, our post-lobotomy patients made fewer total groupings. Another characteristic of our patients, and one which is probably attributable to psychotic residuals, was the frequent appearance of groups of apparently non-related objects bound together at the verbal level by bizarre and esoteric reasons. The recall ability of our patients failed to reach normal limits in both the pre-operative and post-operative stages, with the greatest degree of inefficiency noted in the immediate post-operative phase. In clinically improved patients recall ability increased with the increased post-operative interval. Perhaps most significant, from the standpoint of our immediate interests, was the behavior of patients when the examiner made arbitrary additions to the established groups and inquired whether the patient could accept such additions. In the light of our previous work with the modified Kohs Block Design test and the Color-Form test, one would expect that the impaired categorical functioning would be reflected in an inability of the patient to break down the established set and create a new one. This is precisely what happened. It became

apparent at once that our subjects were finding it extremely difficult to accept the addition of new elements to their previously established groups, even though the lines of relationship seemed perfectly obvious and logical. One patient placed a small silver knife, fork and spoon together in one group. When a plate was presented as an addition he rejected it, saying, "It ain't silver." It was only after several pointed suggestions had been made that he was able to see the very obvious fact that the knife, fork, spoon and plate constituted a logical group. At the other extreme there were patients who were willing to accept all additions and went to great lengths to justify them. These patients constituted the group which showed least eventual clinical improvement. The best clinical courses were evidenced by those patients who showed some degree of post-operative impairment of categorical thinking, although one case showed an unusually excellent course without a trace of abstract impairment.

Our final approach to the problem of categorical and abstract thinking impairment was suggested by the work of Piotrowski (10) who indicated that the Rorschach technique has an important bearing upon the matter of concept-formation for the analysis of total personality patterns. As we have seen, Weigl (12) has pointed out that the essential difference between normal subjects and brain lesion patients is the inability of such patients to shift their orientation or their frames of reference. Given an established set, it becomes extremely difficult, if not impossible, to break it down and replace it with a conflicting set. Piotrowski (10) finds a reflection of this defect in the inability of patients with intracranial damage to fit suggested interpretations to the Rorschach cards. In our work with the form-perception technique, we found similar difficulties. Many of the Rorschach designs are readily interpreted in terms of certain more or less obvious responses. We found that several of our patients were unable to fit our suggested interpretation to a given design, after they had already made an interpretation of their own. There appeared to be a peculiar resistance to the development of new concepts which conflicted with those already established by the patient. Here again, it must be pointed out that this difficulty appeared both in the pre-operative and post-operative stages, with a slight though insignificant tendency to appear more frequently in the immediate post-operative period. The inevitable question arises as to how much of the post-operative defect is a function of the psychotic processes, and how much can be attributed to the organic damage. We know that the impairment of abstract behavior frequently follows accidental

brain lesions and cerebral neoplasms, especially those involving the frontal lobes. We know also that similar impairment occurs in many severe psychotic states. Considering the fact that in our cases the impairment, as structured by the Rorschach technique, appeared both pre-operatively and post-operatively, we are forced to view the defect as an outgrowth of the psychosis rather than of the frontal lobotomy.

On the basis of these tests, it is apparent that all patients do not show impairment or deterioration of abstract thinking following prefrontal lobotomy. In our series of cases, the two patients who did not show pre-operative impairment of these functions also failed to show impairment in the post-operative period. That the possibility of pre-operative impairment be recognized is of utmost importance. There is a question as to whether the impaired abstract behavior observed following lobotomy is indeed a function of the surgical insult to the intact brain, or whether it is a residual of the pre-operative psychotic structure. Our data are inconclusive on this point. What is needed is a series of cases in which there is a demonstrable lack of pre-operative impairment of abstract behavior with subsequent post-operative determinations. It is clear from our data that clinical improvement may occur in the absence of improvement in abstract behavior and, conversely, there may be decided improvement in abstract functions without noticeable improvement in the general behavior patterns of the patient.

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REVIEWS, ABSTRACTS, NOTES AND CORRESPONDENCE

PROCEEDINGS OF THE CONFERENCE ON THE PSYCHOSOMATIC STATUS OF THE INFANT AT BIRTH

Chairmen, L. W. SONTAG AND LAWRENCE K. FRANK*

DIFFERENCES IN MODIFIABILITY OF FETAL BEHAVIOR AND PHYSIOLOGY

L. W. SONTAG

Since the modifiability of fetal behavior and also of neonatal behavior has strong psychosomatic implications, I should like to remind you that the psychosomatics of the fetal period offer many complexing possibilities because two minds and two bodies are involved. All of the following possibilities must be considered:

1. Ways in which characteristics of mother's body physiology may affect
 - a. The fetal body structure and therefore neonatal adjustment
 - b. Behavior of the fetus and neonate.
2. Ways in which mother's emotional state may alter her body physiology and therefore
 - a. The infant's physiology
 - b. The infant's behavior pattern.
3. Ways in which exogenous stimuli such as sounds, pressures, etc., may alter fetal behavior pattern and physiology.

It is obvious then that in thinking of fetal psychosomatics we are not, as is often the case, concerned merely with the somatic manifestations of emotional disturbance or even the emotional manifestations of somatic changes. The object of this paper will be to present a review of some of the more interesting and pertinent facts in the field of fetal behavior and maternal fetal relationship.

I should like first to mention the importance of maternal nutrition and maternal endocrine status as factors which are immensely important in delineating the fitness, adequacy and growth progress of the newborn. The work of Ebbs and Tisdall of Toronto, Stuart at the Harvard Growth Study, and our own work at the Fels Research Institute is constantly indicating more clearly that the soundness and adequacy of the body of the newborn infant and therefore the competence with which he undertakes the physiological adjustment and the social adaptation of the neonate, are dependent to

an important degree upon the adequacy of the food eaten by his mother during the period of gestation. Weight and length of the newborn are affected by maternal protein intake. Growth progress during the first year is influenced by both protein and vitamin intake of mother. Decay and loss of deciduous teeth and therefore facial growth are influenced by vitamin D intake. Incidence of first year illness is lessened by adequate protein and vitamin in the mother's gestation diet. Susceptibility to rickets is greatly lessened by adequate vitamin D in the mother's diet. In addition there may of course, be specific differences in brain structure as a result of pre-natal nutritional differences. About this we know nothing. In laboratory animals gross maternal nutritional deficiencies have produced structural abnormalities in the fetus' body. Hale has produced anophthalmia in the newborn pigs of sows on a vitamin A deficient diet, while Warkany has produced deformities of the jaw and the long bones of rat fetuses from grossly deficient mothers' diets.

There is every evidence that the fetal and maternal endocrine systems are complementary to each other and form what might be called an endocrine pool for such substances as insulin, thyroxin, etc. The effect of the thyroid upon the critical period of fetal growth and therefore in determining the physiology and structure of the body of the newborn infant may therefore be modified if maternal thyroid function is sufficiently abnormal to alter the "thyroid pool." If the mother has an inadequate thyroid function, a part of the product of the fetal thyroid will be devoted to the support of this "poor relative." Maternal diabetes similarly affects the fetal pancreas, and its function at birth is greatly accelerated. Maternal diabetes also affects the size of the newborn. There is suggestive evidence of the effect of many other maternal endocrine differences in shaping the structure and physiology of the fetus.

To summarize: there is increasing evidence of the tremendous importance of maternal nutrition and variations in endocrine function in determining the

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physique, physiology and progress of the neonate. It is, it seems to me, self-evident that the physical and physiological adequacy of the neonate are in turn critical factors in his emotional and social adaptation during infancy and therefore throughout life.

I should like now to discuss other types of relationship between mother and unborn infant.

The study of the human fetus unfortunately does not lend itself to many of the experimental techniques employable in the study of the behavior of the fetus of laboratory animals. The reasons for this are obvious. All work on the human fetus has, therefore, had to be limited either to the living products of abortions or to such aspects of fetal behavior as can be observed through the mother's abdominal wall. Work with the products of abortion has yielded much valuable information but has its limitations because such fetuses are not maintained in normal relationship to the mother and, because as soon as they are removed from the uterus and access to the nutrition and oxygen of placental blood, their entire physiology changes rapidly and the period of their viability is very brief. Of the behavioral factors which are of interest only two are readily available for study while the fetus remains within the mother's uterus. These are the movements of the fetus, such as can be observed through the uterine wall and the nature of and changes in rate of the fetal heart beat. There is, however, a great deal of variability from day to day in these two phenomena and also a great deal of variability from fetus to fetus. At the Fels Research Institute we have been engaged for years in the measurement of the activity of a number of fetuses and in the interrelation of differences in activity with various maternal factors. One of our workers, Helen Newbery Norman, has described the types of movement which we can observe. They are a slow, squirming movement, a sharp kicking movement, a small rhythmic movement which we have called hiccups. The incidence and distribution level of these three types of movements are shown in Figure I. The kicking movement is what Pryor calls the irritative movement or the activity which is greatly altered by various stimuli. The curves shown in the figure represent means of each type of movement at different ages in a large group of cases. As I have indicated, there is, however, a very wide range of variability between fetuses. There are many factors in the life and physiology of the mother, which might conceivably influence the degree of fetal activity or at least co-vary with fetal activity. One such factor is the relationship between mother's autonomic nervous system activity, what is sometimes called "balance," and fetal activity. At the Institute we

have put together a series of measurements of what we have called autonomic function. Included are skin conductance, resting heart rate, respiration rate, variability of respiration and variability of heart rate under basic conditions. From our measurements of these various factors on a large group of individuals, we have constructed means for each factor, and we have compared the scores of each mother with the means for the group. This work was started and is being carried on by Dr. Hudson Jost of our staff. While he has not yet finished the study, his results to date are as follows. Those mothers having the highest skin conductance, most rapid respiration, and the most rapid heart rate have the most active fetuses. Dr. Jost also measured the degree of change in each of these autonomic measures for each patient, when

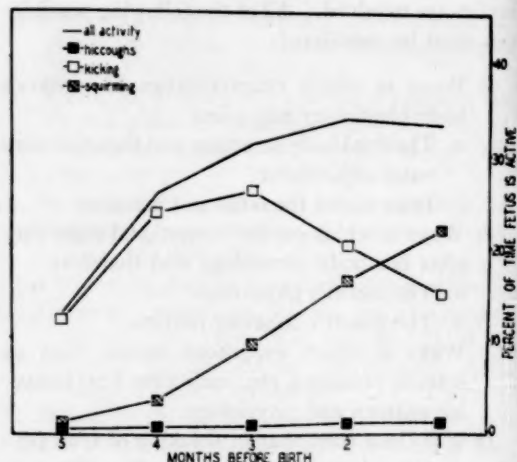


FIG. I. Types of fetal activity. Means, according to months before birth, for a group of 16 fetuses, for hiccups, slow squirming movements, quick kicking movements, and for all activity.

the patient was asked to take a deep breath and hold it for 20 seconds. The degree of change of these functions varied tremendously among the patients. Those with the greatest shift from their basal patterns were those in which the fetus was most active. The autonomic response patterns were also measured at different periods of pregnancy. In almost all cases there is a significant drop in heart rate, in skin conductance, in respiratory rate during the last month of pregnancy. This drop in autonomic measures corresponds in time of appearance with the decrease in fetal activity, particularly the quick movements which are illustrated in Figure I.

If one assumes that such autonomic measures as I have mentioned are to a degree linked with emotional state, and this with the metabolic state of an individual and the amount of adrenergic and chol-

energetic substances in the blood at a given moment, one may postulate that the psychophysiological state of the mother exerts an influence upon the behavior pattern of the normal fetus. Such a relationship is in accord with the observations first made by Whitehead in 1867, who observed greatly increased fetal movement during periods of maternal emotional stress and fatigue. At the Fels Institute we have since verified Whitehead's observations. Mothers undergoing periods of severe emotional stress have fetuses which exhibit many times the amount of activity previously exhibited.

Dr. Windle's paper deals with fetal anoxia. I shall not, therefore, discuss his work, Barcroft's nor Pryor's on the effects of oxygen deprivation. I shall mention briefly a recent observation we made, which may or may not have to deal with oxygen deprivation. We have been observing a young woman throughout the latter part of her pregnancy and measuring fetal activity at regular intervals. We also have been engaged in periodic observations on the state of her circulation as seen in the vessels of the sclera of the eye by means of a biomicroscope. Perhaps some of you are familiar with the observations made by Knisely at Chicago and others on what they have called sludge or intravascular agglutination. Briefly these workers have found that masses of fibrin with enmeshed red cells form in the blood during various diseases, and that they partially occlude the small vessels and slow markedly the flow of blood through these vessels. Thus a degree of anoxia is produced in the surrounding tissues. In the instance of which I speak, Dr. Jost noted one day a marked degree of sludging and slowing of blood flow through the scleral vessels about a month before the expected date of delivery of the patient. He was very much puzzled and interested, since the circulation had been clear upon previous observations. He came down to ask me about it and inquire whether there was any change in her physical state which might account for the vascular change. I had already examined the patient and told Dr. Jost that everything was normal, except that there had been a 15 mm. jump in systolic blood pressure. Two days after these observations the patient was removed to a hospital with a blood pressure elevated 50 or 60 mms. above its previous level, 3+ albumin in the urine, double vision, cramp-like abdominal pains—in short the typical picture of pre-eclamptic toxemia. We were able to observe the fetal activity during this period of toxemia and severe intravascular agglutination. Fetal activity increased to a level unequalled in any of our previous observations of any patient. After a period of ten days the toxemia was partially controlled, and as blood pressure

dropped and the urine cleared up, the fetal activity declined and the sludge improved markedly. The patient had a normal delivery. This marked increase in activity during the toxemia is very comparable to that reported by Pryor in severe hemorrhage of the mother. Pryor attributes the increased activity to a decrease in available oxygen for the fetus. Whether the increased activity we observed was due to an anoxia of the fetus by reason of the slowed placental circulation and of course the thrombosis of placental vessels, I do not know. It is also interesting to speculate as to whether the thrombosis in placental vessels may possibly be associated with the intravascular agglutination which we observed. At any rate here was a fetal behavior pattern markedly altered by physiological changes in the mother's body. Perhaps the importance some psychiatrists attach to the history of a problem child's being born of pregnancy complicated by toxemia may have foundation in the interference with placental circulation which forms a part of the toxemia picture.

As you probably know, the fetus is capable of perceiving and responds to vibratory stimulation applied to the mother's abdomen. The response consists in a typical Moro or startle reflex, with sharp convulsive movements of the extremities and a sudden increase in heart rate. This response has been the basis of attempts made by Ray, Spelt and Kellogg to condition the human fetus. Reports of these investigations are highly interesting, although as yet perhaps not conclusive. We have attempted to see whether there was evidence of adaptation on the part of the fetus to repeated irritative stimuli. We have only one case upon which such an attempt has been completed, but it is perhaps worth mentioning. As I have indicated, when the vibratory stimulation is applied to the mother's abdomen, there is a sudden and sharp increase in the rate of the fetal heart. The increased rate is maintained for a time and finally declines to its previous base line. Our experiment was designed to determine whether a fetus after having been stimulated repeatedly, in fact daily, over a period of weeks, exhibits a different, acceleratory heart rate curve in response to this stimulation than does a fetus which has not previously undergone such stimulation. We found the following changes. In the control group the response to stimulation increases month by month and is highest the last few weeks before birth. In our experimental case, response declined as term approached and as the child had undergone more and more stimulation. In our control group the heart rate returned to normal or pre-stimulation rate only after the elapse of a considerable amount of time, never within five minutes of the time stimula-

tion ceased. In our experimental case the same thing was true at the time stimulation was begun, three months before delivery. At two months the heart rate was returning more quickly to its base line and in the last three weeks before birth, after repeated daily stimulation, the return to pre-stimulation rate was complete by the end of five minutes. The third difference noted was that whereas in the control group the heart rate remained at its peak or increased throughout the period of stimulation, in our experimental fetus the heart rate began to recede towards its original base line before more than half of the stimulation had been applied.

There are also changes in the movement pattern upon repeated stimulation. An unstimulated fetus will respond violently with movement when a stimulus is applied at one minute intervals for a dozen or fifteen consecutive times. A fetus which has been stimulated daily, however, will usually stop responding after five or six stimuli. He still is capable of violent and immediate response at the beginning of a stimulation period but he seems to tire of the nonsense much more readily than had he not had experience previously. Incidentally the threshold of stimulus which is necessary to produce the startle response in him after birth is often much less than it is in the unstimulated fetus.

I mention these examples of fetal stimulation and negative adaption or learning as evidence that external or exogenous stimuli may alter the somatic response pattern of a fetus just as it may alter the somatic responses of a child or an adult. How permanently behavior patterns are altered is not yet clear. That some of these behavior pattern alterations do have a carry-over into neonatal life and/or infancy is suggested, however, by some of the observations we have made on the infants of mothers who have undergone severe emotional stresses during the latter part of their pregnancies. You will remember that these infants responded to what we may presume to be changes in the constituents of the mother's blood with a large increase in their sharp or irritative movements. After birth these infants remained irritable and hyperactive for weeks or months. They cried a great deal and slept for short periods only. There appeared also to be an autonomic or psychosomatic component of such behavior as expressed in gastro-intestinal function. Most such infants exhibit a food intolerance, a cardiospasm, and frequent and often loose stools. They are the type of infants who regurgitate much of their food and who consequently are often switched from one formula to another without significant improvement. They

fail to gain weight for a long period. As a rule after two to four months their gastro-intestinal function becomes more normal and they gradually improve in physical state. Pediatricians have been in the habit of labeling children with such feeding problems as constitutionally inadequate.

A perhaps less important but interesting observation is that fetuses which for any reason are more active, weigh less in relation to their length at birth than do more sedentary fetuses. They burn more of their food supply for energy and thus store less as fat and possibly even as muscle.

In this paper I have named or implied a number of maternal fetal relationships and behavioral modifications which have both fetal and postnatal psychosomatic implications.

To summarize:

1. Contrary to earlier opinion—the progress of a fetus and of an infant is considerably influenced by the quality of the diet of his mother during the gestation period. From the psychosomatic standpoint we should expect greater difficulty and more problems in the process of social maturation and adjustment for the child with a less robust constitution, and with greater susceptibility to disease resulting from poor maternal nutrition.

2. Abnormal maternal endocrine function of such nature as to alter the blood levels of thyroid, pituitary, pancreatic or other endocrine secretion available of the child may be of comparable importance to maternal nutrition.

3. The fetal behavior pattern as observed in utero may be described in terms of three different types of movement and in variations in heart rate. The amounts of sharp kicking movement and slow squirming movement seem to bear some relationship to certain maternal physiological characteristics usually associated with autonomic function and therefore to what one might call emotional state or psychic constitution.

4. Maternal emotional state as observed clinically is capable of altering fetal behavior pattern in the direction of much greater amounts of irritative movement as is also severe maternal fatigue.

5. There appears to be an autonomic component of such irritative behavior which is evident post-natally as gastro-intestinal dysfunction and food intolerance.

6. Hyperactive fetuses store less food as fat than do less active ones.

7. There is evidence that fetal response patterns of heart rate and movement can be altered by exogenous stimuli.

STRUCTURAL AND FUNCTIONAL ALTERATIONS IN THE BRAIN FOLLOWING NEONATAL ASPHYXIA¹

WILLIAM F. WINDLE²

It has been recognized in recent years that asphyxia preceding or accompanying birth is one of the major causes of the present high still-birth and neonatal death rates. Of greater importance, it would seem that the mark of asphyxia is upon many who live after heroic measures of resuscitation.

We know that structural alterations in the adult brain follow anoxia induced by breathing atmospheres lacking oxygen, by asphyxial degrees of nitrous oxide anesthesia, or by arrest of the cerebral circulation. Complete anoxia of nervous tissues need be of brief duration only, to bring about profound and permanent changes. Lesser degrees of oxygen deficiency when administered repeatedly likewise can result in permanent brain damage in adult animals.

The fetus and the newborn are more resistant to deficiencies in oxygen supply than the adult. Their survival times are greater, providing an important factor of safety against the ordeal of birth. However, it is a mistaken idea that the fetus in utero thrives in an environment of low oxygen. It has been clearly demonstrated that conditions of respiration before birth are fully adequate for growth. Oxygen saturation of the blood reaching the fetus may be as high as 95 per cent until the latter part of gestation when somewhat lower levels prevail.

Because of certain obstetrical factors not so often encountered in other species, human fetuses are occasionally subjected to very severe anoxial conditions at the time of labor or during birth. It should be of great interest to know to what extent their nervous systems may be damaged. The present report provides a partial answer to this question.

Neurologists and pediatricians have had their attention drawn to manifestations of cerebral pathology in human infants which Little in 1862 described as due to "abnormal parturition, difficult

labours, premature birth and asphyxia neonatorum." Many are prone to ascribe such abnormalities as cerebral diplegia, congenital spastic paralysis or other manifestations of Little's disease to birth accidents or developmental defects. Dr. Frederick Schreiber, of Detroit, has assembled an impressive series of human cases in which the relationship between neurologic disorders and asphyxia at birth seems clear. His thesis has met with opposition by some who point to the lack of experimental controls. They hold that the neurologic defects may have been inherent, causing the respiratory difficulties at birth rather than following them. Proof that asphyxia leads to neurologic defects may never be found in the human newborn because adequately controlled conditions in multiple births are uncommon. It is essential to supplement clinical studies with experiments in animals.

We selected the guinea pig as our experimental animal for several reasons. With a hemoendothelial placenta, the conditions of fetal respiration are fully equal to those in man. The guinea pig breeds at all seasons and usually gives birth to 2 or more relatively large and mature young. Fetal survival time during anoxia is much shorter than with other common laboratory animals, resembling man in this respect. From the standpoint of histologic technique the guinea pig is more suitable than the dog or cat because its brain is small enough to be handled in one piece.

Experimental procedure in most instances was as follows:

Pregnant animals at or close to term were operated upon after anesthetizing the abdomen with a one per cent procain solution. No other anesthetic was necessary. One fetus of each litter was delivered without delay to serve as the control for those to be asphyxiated. The uterine blood vessels were then occluded with clamps to induce a state of anoxemia in the remaining fetuses. They executed violent movements including respiratory activities in utero during the first stage of asphyxia. When their respiratory efforts had ceased the fetuses were delivered. At various times thereafter, but in many instances only after the heart beat had weakened alarmingly, they were resuscitated by rhythmically inflating their lungs with oxygen or oxygen containing 10 per cent carbon dioxide. A small rubber bag of gas was attached to a hypodermic needle which was passed into the trachea through the neck. The average duration of asphyxiation was a little over 13 minutes (range,

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² Institute of Neurology, Northwestern University Medical School, Chicago, Illinois.

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4½ to 21 minutes). The average time required to resuscitate was 29 minutes (range, a few seconds to well over an hour).

More than 150 experiments have been performed. In 73, detailed histologic studies have been carried out under thoroughly controlled conditions. Studies of activity levels, learning ability, and memory are in progress. Our experimental methods and some of the results are illustrated in a motion picture film which can be summarized as follows:

Asphyxial conditions during birth can produce severe changes in the central nervous system, a fact well established in the adult. A relationship exists between duration of anoxia and severity of brain damage, but it is not as precise as might be expected. All animals whose placental circulation was occluded for 8 minutes or more and requiring more than 5 minutes to resuscitate showed definite to marked pathology. Those whose vessels were occluded only until intrauterine respiratory efforts, induced thereby, had become weak and which required little or no resuscitation, thereafter usually showed indefinite or only slight pathology. Variations were so great, however, that it is impossible to state categorically that asphyxia of short duration will cause no nervous changes, or that more prolonged asphyxia will be certain to lead to significant permanent effects.

All experimental animals manifested symptoms of a neurologic nature after birth. Decerebrate states, hyperkinesia, tremors, convulsive seizures, choreoathetoid movements, spasticities, paralyses, ataxias, somnolence, and impairment of sensory functions were encountered. Neurologic symptoms as a rule failed to persist in marked form throughout life and were often only transient. The animals which exhibited the most marked and per-

sistent symptoms also showed the most severe structural alteration in the brain.

Observations on behavioral changes induced by asphyxiation will be correlated with structural changes when a study of learning ability, etc., now in progress, has been completed. At present the brains of 36 experimental animals and their littermate controls have been studied. Twenty-three showed definite pathologic changes. Of these, 19 (or 83%) were inferior to their littermate controls in the maze tests. Some could not learn the simple problem illustrated in the film. Others quickly forgot the solution. None was superior to its normal control.

In evaluating the results of our experiments and in relating them to possibly similar observations in human infants at birth it should be emphasized that all our specimens showing structural changes were animals which had been resuscitated successfully and which lived thereafter for varying periods of time up to and beyond sexual maturity. In this respect they can be compared with human beings who require resuscitation at the time of birth but survive for months or even many years. The physiologic processes concerned in producing the brain lesions are comparable in the guinea pig and man. They are relatively simple alterations in the basic functions, respiration and circulation. It would therefore seem reasonable to expect to find the same kind of pathologic alterations in human beings which survived asphyxia and resuscitation at birth. Such observations have, indeed, been reported. Like our experimental animals, by no means all asphyxiated human infants have permanent manifestations of nervous disease. However, the possibility of inferior mentality, diminished learning ability or, simply, mental dullness as sequelae of anoxia at birth should not be dismissed lightly.

EFFECT OF THE MOTHER'S EMOTIONAL ATTITUDE ON THE INFANT

FLANDERS DUNBAR*

Despite the folklore and the voluminous old wives' tales relative to prenatal influence, little scientific attention has been devoted to detailed observation of the effect of the mother's attitude on the child before or after birth. Little is known about prenatal influence although there are a few respectable scientific clues.

Dr. Hooker, Dr. Sontag and others have sur-

prised many of us by their data relative to the reactions of which the embryo and foetus are capable. In view of our knowledge of physiological mechanisms, most of these reactions could be assumed to be more or less subject to influence by the psychosomatic state of the mother. The physiology of the mother is changed when she is under emotional strain and the effect of these changes is transmitted to the foetus through the placental circulation and in other ways. But pending accumulation of more information in this sphere, the effect

* Departments of Medicine and Psychiatry, Columbia University Medical Center.

of the mother's attitudes on the infant presents a fertile field for investigation.

Because Dr. Fries plans to present some objective data relative to psychosomatic relations between mother and infant, the following comments are based largely on clinical observation rather than on experimental data. On the one hand there is the fact that the infant is less adequately equipped than most new-born animals to cope with extrauterine environment. On the other hand the human mother in our culture is in many ways less well equipped to deal with the infant's helplessness than most mammalian mothers. These facts in their interaction create problems for parents and children, and disorders in society.

Certain characteristics of the infant serve to render it particularly sensitive to the impact of the maternal attitudes. First, from the point of view of the soma the process of myelinization is a gradual one, probably differing from infant to infant, although the all-or-none response to most stimuli is a characteristic of the new-born. Second, from the point of view of the psyche, or the developing personality, the infant has not learned to differentiate itself from its environment and hence is easily confused and very suggestible. Third, from the moment of birth, the infant is confronted with the problem of integrating diverse types of experience, all the while handicapped by an inadequate receiving apparatus and an inadequate capacity to assimilate and correlate.

From the study of these and other well known characteristics of the new-born, it is obvious that to the long list of the more mechanical noxious agents to which the infant is exposed there must be added many exogenous influences. Among these the following deserve special emphasis:

1. The factor of emotional contagion
2. The possibility of trauma from exposure to intense adult emotion
3. The susceptibility to exhaustion through over stimulation
4. The inhibition of growth through over-protection or over-training

Of these, perhaps the most frequently overlooked is the infant's susceptibility to what has been termed "*emotional contagion*." What is meant by this term is illustrated by the following story:

A four-months old infant who had been eating liver soup for about a month, with great enjoyment, was suddenly reported to be unable to tolerate liver. What had happened was that the mother who usually fed the infant had asked the child's great-aunt to take care of the noon feeding once a week when it was necessary for her to remain on the job. The mother happened to return home on one of these days and paused outside the

nursery door to see what was going on. The great-aunt was saying, "Mary, just one more spoonful of that nice liver." The child was making faces and spitting it out. The mother detected an expression of disgust on the great-aunt's face. She then said to the great-aunt, "Won't you stay and have lunch here? We are having liver and bacon." The great-aunt replied that she would rather eat in a cafeteria than eat liver and bacon. She said: "I think it is disgusting to eat the insides of animals." The mother handled this situation by never ordering liver for the infant on the days the great-aunt was to be there, and the child continued to eat the liver with great relish whenever it was given to her by her mother. Had the great-aunt been the infant's nurse instead of an occasional visitor, the mother and the pediatrician probably would have decided that liver disagreed with the infant because of heredity or constitution, and the infant much later probably would have said that liver disagreed with her and this food intolerance might have become a physiological habit.

There was a further incident illustrative of a similar emotional contagion. The infant previously had enjoyed egg yolk. The great-aunt suddenly reported that that too disagreed with the infant. The mother then said: "Don't you like eggs?" The great-aunt replied: "Yes, of course. But not all dried up the way you feed them to that poor baby." The mother asked the great-aunt how she would fix them and the great-aunt replied that she would fix them with a little milk and butter. The mother replied: "Fix them the way you like them and give them to her." After that the baby was able to tolerate egg yolk with milk and butter when the great-aunt fed her, and in the previous less attractive form when the mother or father fed her.

Since feeding is the focus of the first emotional relationship established between mother and infant, and a major element in the relationship between pediatrician, mother and infant, it would be desirable to include in every textbook for pediatricians, and in every handbook for mothers, the suggestion that there is probably no point in prescribing for the infant any food substance for which the mother, nurse, or whoever is in charge of feeding, has a definite dislike. Fortunately, today an adequate substitute can be found for almost every ordinarily prescribed item in the infant's diet.

But while parents, infant and pediatrician are focusing their attention on such practical problems as these, the infant is also struggling to become aware of itself as an individual. The contagion of parental attitudes probably is most marked for better or for worse in relation to ego development. Even if the doctor, or the mother herself, does not know whether the infant is really wanted, the infant usually seems to get a pretty good idea of the relationship. This is independent of whether or not the mother has decided to nurse it. A rejected or hated infant, whether it becomes crushed

and lonely, or whether it rebels, is likely to incorporate in its idea of itself its impression of what its parents think of it. Even such details as calling an infant "it" instead of "he" or "she," or "baby" instead of "you" or by its own name, may have an effect on future development. Babies who are regarded as playthings or mere objects of affection tend to remain infantile longer, and they are more likely to become sick than those who are treated as human beings.

The intensity of the emotional contagion is, of course, greatly modified by the parents' capacity to be objective. The electrical potential of the emotional atmosphere in which families live may reinforce or diminish the element of contagion.

Exposure to *intense adult emotions* is traumatic to the developing personality of the infant. Weathering a storm of parental rage may bring about a traumatic neurosis like that frequently observed in survivors of Dunkirk. The infant who can get through its first year without exposure to its parents' hostility or sexual tension is likely to have fewer psychosomatic symptoms. This seems to be true even if the child is not the focus of the hostility or sexual interest, because in any case he is inevitably caught up in the mother-father-relationship. Even exposure to emotional outbursts in siblings may be traumatic because a child, only one or two years older, is vastly different in its physical capacities and in its emotional defenses from the infant. Of course children usually express rage or sexual tension almost from the moment of birth, but they do better when their first exposure to rage in others occurs in situations with their contemporaries.

Many parents who are careful about exposing the infant to overt expressions of their own emotional conflicts are nevertheless unaware of the many little ways in which these conflicts still may have an influence. Although the infant needs a sense of love and security, and assurance that the parents will be available to meet needs as they arise, it also needs to be left alone and to be allowed to experiment by itself. The compulsion to be constantly with the child in everything it does, or to keep it constantly entertained, may bring about *exhaustion through over-stimulation*. The parent who is always with the child can scarcely avoid overstimulating it, although at the same time this parent easily may become sufficiently annoyed by its demands to fail to respond promptly enough when the child is waiting for food or dry diapers, or reassurance when frightened. Waiting is much more difficult for the infant than for the adult, so that the ideal would be to study the problem of timing, leaving the infant alone as much as possible but never failing to

respond to a definite need. Sometimes the need to be entertained is important too. Infants like the rest of us may suffer from boredom. Symptoms like sleeplessness, restlessness, fear of the dark, nightmare, diarrhoea and constipation, can be often avoided or eliminated if the parent is careful in these respects.

Inhibition of growth through overtraining is also of frequent occurrence. Just as the infant should not be expected to make up for the emotional frustration of the parents, it should not be expected to become the kind of person the parent *wanted to be*. Too much concern about the child's development, too much interest in providing the ideal routine and training program, may interfere just as seriously with development as emotional smothering. Insofar as possible the infant should make its own experiments, should learn to not put its fingers in the fire because the fire is hot rather than because the mother says "no." Often if no somatic symptoms result from such pressures, behavioral patterns may be occasioned which favor the development of somatic dysfunction and damage later in life.

Of course the points just outlined are familiar, but too much emphasis cannot be placed on the value of careful investigation of the role which may be played by one or all of them in connection with behavior problems and illnesses in early infancy. If such injurious influences are eliminated from the infant's early environment, many childhood disorders such as constipation, susceptibility to colds, indigestion, allergy, can be prevented from becoming chronic or even completely avoided.

Many illness tendencies of adults which have been labeled hereditary or constitutional have their background in childhood injuries brought about by faulty emotional attitudes in the parents. The human being is never so susceptible to this type of damage as during the period of infancy. Physicians aware of this fact can interest the parents in observing the child and develop in the parents an attitude of cooperation which is sympathetic and objective rather than frightened. Only too often well-meaning physicians call the mother's attention to the far-reaching effects of her emotional attitudes on the child in such a way as to activate her insecurity, or even guilt, rather than her capacity for understanding and confidence.

A review of 1500 serial admissions to a general hospital, of patients suffering from diverse cardiovascular disorders, diabetes and fracture, emphasized the lack of evidence for hereditary factors in these syndromes. Most medical textbooks stress heredity of cardiovascular diseases in discussing

these diseases, and ignore such heredity in patients suffering from other illnesses. In this series it was found that the incidence of cardiovascular heredity was nearly equal in all the groups studied, whether or not they had any cardiovascular disorder. Patients admitted for fracture, with no cardiovascular symptoms or damage showed just about the same percentage of cardiovascular heredity as patients admitted for hypertension or for coronary occlusion. Indeed, if one were to use statistics of hereditary incidence in the customary way, one would have to conclude that accidents are hereditary since the parents and siblings of fracture patients had an extraordinary incidence of accidents of all types. These seeming anomalies are eliminated, however, when one changes the basis of the statistics to disease incidence among those to whom the patient was *exposed*—including friends and relatives by marriage. There had been more exposure to cardiovascular diseases among patients suffering from these illness than among patients in

any other group. Often there was a history of having lived with, or having nursed a parent in an acute terminal phase of the disease. Whether what we have come to call pseudo-heredity is a matter of early catching of emotional tension and bad habits of living from those intimately associated with the patient in infancy, or whether many more factors are involved, is still a question, but the susceptibility of the young child to emotional contagion must be considered in any discussion of heredity or constitution.

If establishment of illness habits can be avoided in infancy, many of the most baffling chronic diseases of later life may be eliminated or ameliorated. Certainly it would appear from the evidence now available that the incidence rate of many such diseases can be greatly decreased. In brief, the sphere of investigation undertaken by the Committee on Psychosomatic Problems in Pediatrics represents a frontier in preventive medicine.

PSYCHOSOMATIC RELATIONSHIPS BETWEEN MOTHER AND INFANT

MARGARET E. FRIES, M.D.*

The overt interaction of mother and child, during the first ten days of life, is important to study for the understanding of later development. It is impossible to enumerate all of the factors of the child that react upon the mother. For example, it is well-known that the sex of the child has a great effect upon the mother-child relationship. If the child is of the sex that satisfies the mother's own emotional needs, she will be gratified and be more able to satisfy the needs of the child. If, on the other hand, the child's sex creates an emotional conflict in the mother, it will add an obstacle in establishing a good relationship, thereby creating anxiety in the child. Also, if the child is born with a minor abnormality, such as a birthmark or a temporary partial paralysis, this may disturb certain maladjusted mothers far beyond the reality of the situation. Of all the factors within the child, bearing upon this mother-child relationship, the one I wish to stress today is the Activity Pattern of the newborn because it seems important, not only in the emotional development of the infant, but in his physical and mental development as well.

The term "Activity Pattern" is used to describe the varied amount of activity the newborn infant shows throughout the lying-in period. This activ-

ity can be observed in the number, extent and tempo of its movements throughout the day and night¹. Infants can be roughly grouped, according to their activity, as Quiet, Moderately Active or Active; all three groups are within the normal range. These classifications overlap, but have proven useful for practical purposes. The infant's amount of activity can have different effects upon the mother, depending upon her own personality development. For example, a quiet child, because it cries and moves less than an active child, may give the parent a feeling of security as to its well-being, although this may be entirely unfounded. But, during nursing, a quiet baby, because it may not grasp the nipple quickly or falls asleep during nursing, may cause anxiety. The active baby, on the other hand, may create anxiety because of crying and activity during the day, but, since it nurses more readily, it may be considered on that score the "good" baby. Parents will respond differently to each of these situations.² In turn,

¹ For complete description of research and bibliography see:

1. Fries, M. E.: National and International difficulties. *Am. J. Orthopsychiat.*, **11**: 562, 1941.
2. Fries, M. E. and Lewi B.: Interrelated factors in development. *Am. J. Orthopsychiat.*, **8**: 726, 1938.
3. Fries, M. E.: Mental hygiene in pregnancy, delivery and puerperium. *Mental Hygiene*, **25**: 221, 1941.

* From the New York Infirmary for Women and Children.

their response affects the infant, creating more or less anxiety or gratification.

To understand different infants' Activity Patterns and their significance, two short tests for comparing their responses in this respect were devised.

1. *The Infant's Startle Response Test:* A given weight, (1 lb. 5 oz.), was dropped from a given height, (5½ in.), by releasing the spring of a machine. The machine was so constructed that the infant was well protected from the weight which fell close to his head. The infant's responses to this Weight x Height Stimulus Test were observed as to the number, extent, tempo and duration of movements and crying. Written records, and, wherever possible, movies were made of this procedure, (sixteen frames per second). The infant's responses to the Weight x Height Stimulus Test correlated highly with its daily amount of activity. The Active Child moves more violently for a longer period of time and cries lustily as compared to the Quiet Child who may hardly move or cry.²

For instance, the Startle Responses of the Active Baby in the movies last between 25 and 55 seconds, while the Quiet ones last 6 to 9 seconds, and the responses of the Moderately Active range between these two. Occasionally a reaction is atypical in length, but the duration of the Startle Response cannot be taken as an isolated measure of the Activity Pattern; it must always be considered in conjunction with the intensity and tempo of the movements.

From a practical point of view, the implication of these Activity Patterns is that the needs of each group will be different. Therefore, knowing these needs, the adults in the environment can handle them differently to the point of satisfaction. For instance, the quiet child will take longer to be aroused from sleep to nurse than the active one, therefore requiring more patience, and should not cause the mother anxiety or impatience; likewise, such a baby can tolerate, and probably should have, more stimulation than the active one, while the active child, because of its acute responses to all stimuli, may need more comforting and reassurance, such as being held, or being spoken to in friendly fashion in order to quiet it down, instead of being isolated to cry itself out.

Not only is it important to handle them differently, so as to reduce anxiety and increase gratification, but it is important not to violate the individual personality. That is, not to try to force them into roles which are not suitable to their individual Activity Patterns, for that would only

create a feeling of inadequacy in the child and frustration in the environment because of its failure.

2. *The Response to the Presentation, Removal and Restoration of an Object of Gratification,—Oral Test.* The breast or bottle was presented to the infant. After he had been sucking well for one minute, (no longer, as satiation might occur), the nipple was removed. After one minute, it was restored to him.

The three groups of children usually showed typical responses, but again these may be overlapping.

Quiet Child: When the nipple is presented, the infant, wide awake, may take it at once, but if drowsy or asleep, may require some help to grasp it. When the nipple is removed, the infant is quiet, continues the sucking act and then falls asleep. When the nipple is restored, the infant keeps his mouth closed and there is considerable difficulty in reinserting it. But, once the nipple is reinserted, the infant sucks.

Moderately Active Child: When the nipple is presented, the infant usually takes it right away. When the nipple is removed, he remains awake, may move his head or extremities. When the nipple is restored, he sucks at once.

Active Child: When the nipple is presented, the infant may continue his activity or take it right away. When the nipple is removed, he may have a startle response. When the nipple is restored, he may continue his activity and/or cry before sucking.

The fact that the different groups respond to this test differently appears very significant in what might be expected of the future trends in personality development. On the basis of this test alone, we can foresee the development of different personalities, if the original Activity Pattern is retained. The manner of each group in overcoming obstacles will differ: the quiet ones going more slowly or even calling upon the environment for assistance, while the active ones will speedily and vigorously overcome the obstacle, insofar as is possible, on their own; even sometimes going ahead against the advice of the adults. The moderately active group falls somewhere between these other two.

The attitude of the environment must therefore differ towards each group. In the case of the quiet child, when it calls upon its environment, it should be encouraged to solve the problem itself, but the adult should help if it is necessary for the child's success. The active child requires more watching, which frequently irritates the adult who has to give

² Standard is now changed to 300 gms. × 20 cm.

this constant care. It would be better if the child could be active without hurting itself or the environment, and without incurring the disapproval of the environment in overcoming its many obstacles. If a neurosis should develop, the Activity Pattern will contribute to the form it will take.

This Oral Test therefore serves two purposes: 1) it helps to determine the Activity Pattern of the newborn and, 2) gives insight as to how the infant, unaffected by the environment, responds to presentation, removal and restoration of an object of gratification during the postnatal period, and how the adult will probably respond to these same situations in life. Since the Activity Pattern is only one determining factor in personality development, the others cannot be overlooked, especially the emotional adjustment of the parents which will be discussed later.

Although I have emphasized the Activity Pattern, naturally the infant's general organic condition plays a role in his responses to these tests. The same child, when sick, will respond differently than he would when well, demonstrating that the Activity Pattern can be temporarily modified.

It was found that the stage of myelinization at birth obscures the true picture of the Activity Pattern. As example—in one post-mature healthy baby, where myelinization was advanced, the responses to all stimuli were few and mild, thereby giving the false impression of a baby with a quiet Activity Pattern. Therefore, it is important to attempt to ascertain the stage of myelinization when determining the Activity Pattern of each infant. Unfortunately, with our present tests, it is not really possible to determine accurately the stage of myelinization. I have used some of Dr. Gesell's tests, but he himself questions the use of his tests for this purpose.

An important question is: Do the involuntary muscles have the same Activity Pattern as the voluntary ones? The behavior of one quiet infant who expelled an enema very slowly suggests the possibility that they do. The findings of Dr. Sontag certainly would bear this out also. A further study of these may throw interesting light on the susceptibility of certain types of individuals to certain functional illnesses. (Likewise there seems to be a difference in responses of the active and quiet infant to oral and nasal stimuli; cases examined were too few in the series to report.)

The newborn's physical condition, maturity and Activity Pattern are important factors in determining the manner in which he behaves, particularly the way he meets new situations and obstacles. But, since he is totally dependent upon the environment for the fulfillment of his needs, food, warmth, etc., it is the environment that is responsible for his

achievement and the accompanying affect. All environmental factors, economic, physical, social, play a role, but the most important single factor, for the young infant, is the emotional adjustment of the mother. Her attitude is conveyed to the infant directly through everything she does for him, not only nursing, but also undressing, holding, tucking him in, etc. Her fingers, arms and voice produce comfort or discomfort. Furthermore, her emotional attitude affects him indirectly, since it influences the flow of breast milk. The dependent newborn is, so to say, enveloped in a twenty-four hour emotional atmosphere, but how he will respond depends upon his own make-up.

It is the interaction of the total environment with the total infant that is responsible not only for the child's future integrated development but the mother's as well. Especially important is the amount of gratification or anxiety that is experienced by both of them. From the mother's point of view, she contributes the opportunities for the infant to satisfy his needs, but his ability and the way he utilizes these contributes to her emotional state. From the infant's development, the mother (or mother-surrogate) influences the degree of achievement and accompanying affect, while he determines the manner of the responses. How the child's Activity Pattern can be modified and how it plays a role, not only in muscular activity, intellectual pursuits, but also in character traits, repression, etc., is being studied in these same children.

During the lying-in period, the Activity Pattern can be temporarily influenced by many factors, such as anaesthesia that the mother has had during labor, cerebral haemorrhage, asphyxia or pressure sustained at birth; illnesses such as colitis, otitis or by operation such as circumcision. In certain children there is a temporary quiet or active period during the first 3 to 7 days before the real Activity Pattern becomes discernible. I have thought that this may be due to absorption of small hemorrhages, changes in intracranial pressure or re-establishment of water balance, etc. The Activity Pattern is also affected in a lesser and passing manner by an inadequate nursing or a night's disturbed sleep. It was only through 24 hour observations of total behavior throughout the lying-in period that the above variations were discovered. The longer the observation periods are, the more accurate will be the appraisal of the true Activity Pattern.

After following these same children for 5 years, it was found that the Activity Pattern of the so-called normal child could be modified, but only within certain limits; and that the most important factor responsible for modifying it (excluding

organic pathology) is the parents' emotional adjustment, their relation to each other and to the child. Other forms of the Presentation, Removal and Restoration of an Object of Gratification were devised to follow the child's development in this regard, and to ascertain what happens to the child's original Pattern as shown in the Oral Test. There was a tendency for the Activity Pattern of children of emotionally adjusted parents either to remain the same as the original Activity Pattern or to swing towards the median line; that of the children of emotionally maladjusted parents, while remaining usually on the same side of the median line, tended to deviate from it. If, however, the child develops a neurosis around 5 or 6 years, the Activity Pattern can show amazing changes. In one active child, the activity was turned in upon herself. Due to the repression, the child became much quieter, however, she could no longer overcome obstacles as she had before and she also showed compulsive washing behaviour. Such a child's quiet behaviour must be differentiated from another child who is quiet because of her Congenital Activity Type. This can only be done when considering the total child. No child in the group has become psychotic so I can only theorize about some of the etiological factors involved.

In trying to understand why the Activity Pattern can be modified, although "normally" only within certain limits, an attempt was made to consider all possible etiological factors. This was clinically impossible, since the influencing factors are infinite; therefore the following hypothesis was drawn up:

The Activity Pattern is probably primarily dependent upon the excitability of the neuro-muscular system. One can speculate that perhaps part of the

excitability of the neuro-muscular system is congenital by result of inheritance, intra-uterine life or birth itself; while part of the excitability is determined by temporary body changes, such as illness, growth, emotional state, etc. That part of the Activity Pattern resulting from the congenital factors will persist throughout life and can be considered the Congenital Activity Type, while that part of the Activity Pattern derived from the temporary factors can be modified. Therefore, the only period in life when the Congenital Activity Type is identical with the Activity Pattern is from about the fifth to the tenth day of life, when the effects of the modifying factors are at a minimum. To what extent this hypothesis holds, can only be determined by following more infants.

Dr. R. Walder has made an interesting suggestion that this hypothesis may be the explanation of why certain English people who appeared calm, fell asleep or ran amuck during the blitzkrieg—a total frustration; this could be a reversion to their own Congenital Activity Type.

CONCLUSION

The Activity Pattern is only one of the many factors that needs be considered in Integrated Development. The Activity Pattern not only affects the manner of response of the infant, but also influences the attitude of the parents towards the infant.

The maximum amount of gratification with the minimum accompanying amount of anxiety in every act of the day and in each relationship leads to a more emotionally secure individual with fewer psychosomatic symptoms. Whereas deep-seated floating anxiety, as well as anxiety associated with specific physiological functions, leading to later dysfunctioning, has as its basis this early interaction between mother and child.

ETIOLOGICAL FACTORS IN HYPERTROPHIC PYLORIC STENOSIS AND INFANTILE COLIC

BENJAMIN SPOCK, M.D.*

Hypertrophic pyloric stenosis most commonly produces its symptoms several weeks after birth. There is persistent projectile vomiting which leads to dehydration, constipation, and emaciation. The circular muscle of the pyloric valve of the stomach is found to be hypertrophied and spastic so that the lumen of the pylorus is almost completely obliterated. It is assumed that the condition of hypertrophy must have been developing for some time before birth.

* New York Hospital and the Department of Pediatrics, Cornell University Medical College.

The basic cause is unknown, but several etiological factors are well recognized. About eighty percent of the cases occur in boys (15, 17, 20, 23, 25, 26, 27, 29, 31, 32). There are a number of reports in the literature of the occurrence of pyloric stenosis in both of uniovular twins (5, 14, 28). There are 2 reports (Sheldon (28), Lasch (19)) of its occurrence in only one of uniovular twins. Of binovular twins a number of cases have been collected (Sheldon (28), Ford et al., (11), Halberstam (14)) in which only one twin was affected. Only one set of definitely binovular twins has been re-

ported [O'Donnell and Klein, (21)] in which both twins were affected. Sheldon (28) in England and Ford, Brown and McCreary (11) in Canada observed that pyloric stenosis occurs twice as frequently in twin births as would be expected from its frequency in single births. Ford put forward the hypothesis, "the environmental handicap imposed before birth on members of multiple sets is one factor inducing the condition of pyloric stenosis."

The familial incidence is noticeable. Most writers on the subject (31) refer to several families they have seen where 2 or 3 children had the condition. Still (29) reported a multiple incidence in 5 out of a total of 310 families, Salmi (26) in 6 out of 130 families. This at first does not sound like a high familial incidence. But when it is realized that there must be at least 2 boys in a family to give the disease a fair chance to show itself twice, the proportion of multiple occurrence becomes impressive. (The frequency of the disease compared to total births is not more than 0.5%.) Fabricius and Voght-Møller (10) report a family in which 4 siblings had pyloric stenosis all of whom had the same mother and 3 the same father. Brindle (4) reports a family in which 5 of 10 children had pylorospasm. The 2 normal sons had normal children, but the 3 normal daughters all had affected male children. She also reports cases in a paternal uncle and 3 nephews, a father and son, a father and daughter. Halberstma (14) reported a family where in the first generation one brother had the condition. His normal sister and brother each subsequently had 2 children with pylorospasm.

Several writers are impressed by the frequency of digestive disorders and nervousness in the parents and other close relatives (14, 15, 17, 18, 23, 26).

The next factor to be considered is place in the family. Most writers refer to the frequency of pyloric stenosis in the first born (6, 8, 20, 23, 25, 29, 31). The authors who had enough cases to come to a statistical estimate of the proportion of first born all derived percentages of between 48 and 58%. Ford, Ross, and Brown (12) compare their figure for affected first born—52%—with the percentage of all first born children in Toronto which was 41%.

There are suggestive parallels between pyloric stenosis in the infant and peptic ulcer in the adult. Both diseases occur in the same region of the gastrointestinal tract, both occur 4 out of 5 times in males. Draper (9) has produced evidence that patients suffering from peptic ulcer tend toward a distinct physical constitution or habitus. Most observers agree that nervous tension plays a major

role in bringing on the ulcer in susceptible individuals.

The evidence suggests that there are both constitutional and environmental factors in pyloric stenosis. Pointing toward constitution are: the 80% male predominance, the occurrence in one of binovular twins, the family incidence. Pointing toward environment are: the greater frequency in the first born, the disproportionate frequency in twin pregnancies generally, and the two reported instances of a single case in uniovular twins. Ford's (11) hypothetical "environmental handicap imposed before birth on members of multiple sets," might explain not only the frequency in twin pregnancies generally but also the occurrence of single cases in uniovular twins. There is the possibility that the primigravid uterus might impose similar handicaps on the single foetus and explain the frequency in the first born. Another conceivable environmental factor might be the humoral transmission of some product of maternal nervous tension to the foetus. Such maternal tension is commoner during the first pregnancy.

Infantile or "3-months" colic is common, but little understood. The most typical picture is of a baby who behaved well in the hospital. Within a few days of going home he begins to have trouble in the evening. After finishing his 6 p.m. feeding he begins to cry in an irritable, uncomfortable way. It becomes apparent soon that he is having agonizing abdominal pains. He shrieks, pulls his legs up. His abdomen becomes distended and he passes gas by rectum. Rocking and holding him gives only slight relief. He screams from 6 till 10, drains his 10 p.m. bottle and falls asleep. From 10 p.m. until 6 p.m. the next night he may act like a normal, contented baby with a good digestion.

There are all gradations and variations in the picture. One baby has his colic in the afternoon instead of the evening; another has trouble off and on through the day but is at peace at night. Sometimes the colicky period moves gradually around the clock. The colic may last only a few days or it may persist steadily till about the age of 3 months. The disturbance is, if anything, more common among breast fed babies. Manipulating the formula usually has little effect. It seems unlikely that the condition is primarily an indigestion since the same formula is handled well at the other feedings.

There are in addition some babies who always cry irritably from 6 to 10 p.m. or at some other regular period, but who never show clearcut symptoms of colic. Many of them can be made completely comfortable and happy by being picked up, walked, or just by having company in the room.

The suspicion that this is another form of the basic disturbance that also causes colic arises from the facts that this simple irritability comes at the same time of day and persists during the same age period as typical colic.

The cause of colic is unknown. A review of the literature of the past 40 years shows few references to it. It is only dealt with briefly in the text books of pediatrics. The early pediatricians ascribed it to various elements in the milk. Holt & McIntosh (16) say: "Some writers, particularly—in Germany believe that colicky infants form a definite constitutional group characterized by hypertonicity of the voluntary muscles, exaggerated reflexes and a neurotic background." Bonar (2) says: "Environment probably plays an important part in production of symptoms, for the infants usually come from so-called nervous families in which parents are unduly apprehensive about the baby. Usually these infants are first-born. The temperament and emotional instability of the parents of such children often makes it possible to predict prenatally that the baby will be of this type." Brennemann (3) says: "It is more frequent in the breast fed baby", and adds that it is a common observation that mother and baby often have a stormy day on the nurse's day out. The author's impressions agree with these observations. Some colicky babies go on to be high strung older children, but others, who have yelled most unhappily for 3 months, then suddenly turn serene.

One can speculate about a number of possible explanations of colic: constitutional hypertonicity, tension developed in utero from a hypothetical local uterine handicap or transmitted from a high strung mother's system, tension communicated after birth from a nervous mother or nurse. It may be simply a manifestation of the temporary inefficiency of the immature gastro-intestinal tract or sympathetic nervous system. The commoner occurrence in late afternoon or evening suggests that fatigue plays a role.

The period starting around 2 to 4 weeks of age and lasting until 2 or 3 months is characterized by a heightened tension in a large proportion of babies. Their appetites are more avid, they cry more, and they have more difficulty getting to sleep. Gesell and Ilg say: "At about the age of 4 weeks a new type of cry emerges: the baby shows a tendency to cry prior to sleep. . . . This wakefulness crying tends to occur in the afternoon and evening. It loses its prominence after about the age of 10 or 12 weeks" (13). The irritability of this age period may play a part in the causation of both colic and pyloric stenosis.

SUMMARY

Hypertrophic pyloric stenosis and infantile colic are two incompletely understood disturbances that commonly manifest their symptoms several weeks after birth. Various possible etiological factors, constitutional and environmental, somatic and emotional, are presented; some have been established, others have been so far only subjects for speculation.

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EIGHTH SERVICE COMMAND POSTGRADUATE MEDICAL EDUCATION PROGRAM

NEUROPSYCHIATRIC CASE REPORT NUMBER 2*

A 25-year old, single, white private with two years and 10 months of Army service was transferred from an overseas base hospital. He complained initially and subsequently of headaches, dizziness, nervousness and abdominal distress. He was seen by a psychiatrist, who diagnosed psychoneurosis, and transferred from a general medical to a neuropsychiatric ward. The patient was told he would probably be discharged from the Army. During a waiting period in which his case was being further studied, he came to his ward officer and announced that he had invented his symptoms in order to get out of his company. He stated he was perfectly well and wanted to go back to duty. He became evasive and defensive toward questioning, showing poor ability to rationalize his past conduct. He displayed no concern over the possible administrative consequences of his deception. He gave his history in an unwilling fashion, frequently misinterpreting questions or failing to answer to the point. His patterns of thinking were rigid and inadaptible, and if an approach to his sentiments and motivations was made in terms other than his own, he warded off the threat by a bland and stupid misunderstanding which he maintained with inexhaustible stubbornness. He repeatedly sought to terminate the study of his case by insisting that he had no illness of any kind. Persistent efforts at history-taking produced only meager details of direct bearing on his early development.

The patient had three older, married sisters and there were twins, a boy and a girl, nine years younger. He stated the whole family was "easily excited." The three married sisters lived within one block of their

mother at that time because, he felt, they wanted to be near the mother "in case of emergency." He left the seventh grade at 15 years of age. He took odd jobs, changing frequently, and studied carpentry one day a week. At intervals he worked for his brother-in-law in the plumbing business. His highest wages were \$13.00 a week. In 1937 he went to a C.C.C. camp, remaining two and one-half years. He gave a history of numerous deaths in his family when he was 10 to 14 years old. His age at the time of his father's death was variously given as 10, 12, and 16. When this inconsistency was pointed out he decided "about 12," but it appeared he was trying to obscure the memory. His father drowned in an accident while working. His maternal grandfather died of heart failure when the patient was 12. The grandmother died six months later he said, of a "broken heart." Two years later his uncle was supposed to have died of a similar affliction caused by the grandmother's death. Another uncle died at this time in a Veterans' Hospital of the "after-effects of gas poisoning and shell shock." He stated he took the place of his father in relationship to the twins. He occasionally bought them clothes and gave them small amounts of money. He was unable to describe further the parental role which he felt he assumed toward them. He showed a strong preoccupation with the problem of learning a trade. In C.C.C. camp he operated a bulldozer and looked on himself as a trained engineer's assistant. He stated his first heterosexual relationship occurred at the age of 12 with a girl in the neighborhood. At 16 he had sexual contact with a girl friend of his, and not again until he visited prostitutes during Army service, an experience which always brought a feeling of shame.

He enlisted in the Army on 18 July 1940 in order to advance his occupational training. In a month he was sent out of the country with an infantry organization.

* Prepared by the Neuropsychiatric Staff at La Garde General Hospital, New Orleans, Louisiana. One of a series published monthly by Headquarters Eighth Service Command.

During the second year in the Army, the patient began to feel useless to his organization. He stopped driving a truck because he felt that the responsibility was too great. During a later interview, in a rare moment of frankness, he admitted that he was obsessed with a fear of an accident or running over someone and that this continuous fear forced him to give up driving. He described the year as one of "idleness." He became dissatisfied with the Army. He had given up the occupation that gave support to his conviction that he was superior in technical training. His old preoccupation with learning a trade which would confer an unassailable security returned, and he complained that the Army was not teaching him anything he could use later on in civilian life. He found his feeling of idleness reflected in the whole company. He felt that none of his fellow soldiers had worthwhile work to do and that the condition preyed on their minds and affected their sanity. He cited as evidence that three men committed suicide, but his discussion of these alleged events was inconsistent and ambiguous. He felt the war-time Army was vastly inferior to the old Army. All of these attitudes served the needs of defense against the unwelcome impulses which he was struggling to control, including hostile impulses which had already limited his field of work activity. Strong passive and dependent wishes, threatening in themselves, could find an expression if he could realize his ambitious desire to receive special training and thus fortify himself for the future. In accord with the need for defense, he found the sources of his discontent entirely outside of himself (projection), and ascribed the same attitudes to the entire company. The next progression of his attitude brought the belief that the commanding officer was personally responsible for his lack of opportunity and advancement. At one time he admitted that he did not do his work well, but he immediately changed to the formulation, "They did not give me any work to do." When his inefficiency became painfully apparent to him, he sought to salvage his self-respect by expressing a kind of revenge on his organization. He said, "My commanding officer made me idle, so I decided to be really idle." He began to drink to excess. In September 1942 he was injured in a jeep accident. He felt stunned but was able to walk away. He invented symptoms of headache and dizziness with the expectation of being sent to the hospital. There he planned to explain to the authorities that his real disease was idleness and thus accomplish a transfer to the Engineers. In that organization he felt he could learn a trade which would make him secure in civilian life. He believed himself to be already expert in the techniques of operating a bulldozer, road building, bridge building, grading, and dynamiting, and wished to complete his education by mastering surveying and blue-printing. After his hospital admission, however, he apparently abandoned his plan. A diagnosis of psychoneurosis was made and his transfer to the United States was recommended.

He held tenaciously to his assertion that all his symptoms were invented except on one occasion when he admitted that he had "a sort of headache" due to

the tropical sun. When the ward officer pressed him to explain how he made his choice of symptoms he became very angry and answered with unaccustomed warmth and directness: "The doctors invented half of my symptoms. How do I know what they wrote on my chart? It's all right to want to get out of that place. I was there two-and-a-half years." He then continued to the effect that he was perfectly well and didn't want to accept his pay because he wasn't earning it in the hospital.

The patient's defenses against his impulses were prominent, and his true feelings were consequently obscure. The system of defense employed was characterized by rigidity, stubbornness and inadaptability. He frequently became confused and inconsistent when his failure to act consistently with his avowed ambitions was threatened with exposure. He often repeated himself without apparent purpose. He was vague about dates and many facts and compulsively enumerated names of places and persons. He avoided committing himself on his feelings toward loved persons. He could not defend or elaborate any conclusion about matters of personal importance without a marked increase of tension and confusion. When he knew a relevant fact he gave it a prominent place in the discussion, often returning to it inappropriately. In taking a vocabulary test he could not tolerate the uncertainty of guessing at the meanings of unfamiliar words even though he was encouraged to do so in accordance with the rules of the test. He said, "Guessing would not be right." He was very sensitive about his vocabulary limitations, frequently repeating that he was not very well educated. He showed a low tolerance for waiting and uncertainty and continually sought to bring his hospitalization to an end. He did not fraternize with fellow patients. He believed all his behavior had an ultimate purpose, emphasizing repeatedly that he wanted to make progress in learning a trade. In addition he wanted to get married, have a home, and raise a family.

This apparent clarity of purpose was not reflected in his objectively viewed behavior. His wishes were of a receptive and demanding type. He was preoccupied with his need to be given an education. When he failed to make progress, he found the cause in the failure of those in authority to provide the opportunities which were due him. He exaggerated his past accomplishments. His picture of himself was a caricature of the normal: a person without troubles who was always happy and had many friends. His purposefulness existed only within the realm of phantasy. In his actual object relationships he failed to give sufficiently to others to win for himself either opportunity, accomplishment or stable relationships of any kind.

This patient's integrating capacity was severely disturbed. He gave up the occupation of truck driver in the Army because of the development of a phobia. He was apparently always in danger of being overwhelmed by strong hostile impulses. His deep dependent tendencies were clearly shown in his receptive and demanding attitudes for special training although he was inefficient in routine tasks. He reported a

dream in which he was home with his mother, laughing, eating and going to a show. He said in commenting on this dream, "Good times prey on my mind."

The patient used his claim that he invented his symptoms as a defense against the recognition that he suffered from a mental illness. Some time between the jeep accident and the "confession" he formulated the attitude that he chose his symptoms. It seems possible that his symptoms were real in the beginning. The inner conviction that he created the symptoms which he presented to the authority figures of his environment was a part of his chaotic defense system, for it helped to allay his dread of being overwhelmed by his fears and anti-social impulses. His need to feel that all his actions had purpose was now gratified in another way through a sense of voluntary choice of symptoms. He could indulge his unconscious passive tendencies if he maintained even a fictitious sense of control over the outcome. By apparently choosing his symptoms he could maintain the myth to himself that he was not really ill. Actually, the objective disturbances of his object relationships which are evident to the trained observer make it clear that his action was a flight from an intolerable anxiety-ridden situation which he understood very little and controlled not at all. The alternative would have been the painfully unwelcome recognition of the delusional nature of his self-evaluation.

An outstanding finding in this case is the weakness and poor integration of the ego functions. It is likely that the more ordinary types of neurotic illness with symptoms such as somatic conversions or openly admitted phobic ideas were not available to him because his strong instinctual strivings did not permit a safe equilibrium once a new channel of expression was opened. The instability of his personality is thus seen to be of a psychotic grade. The purpose of his defenses was to deny to himself that the instability which threatened him existed. This is a very inefficient and inhibiting type of defense since all the energy involved is expended internally, whereas the usual ego defenses seen in neurotics and healthy persons permit of a variable amount of outward expenditure of energy, much of which is available for object relationships. When real life frustrations threatened to expose his pretensions, this patient chose, from his point of view, to substitute a lesser evil for a greater one and more or less consciously created symptoms which enabled him to ascribe his flight to ordinary symptoms which did not in themselves betray the true depth of the disturbance. The only alternative for him would have been a regressive process of schizophrenic grade.

The confession was also a pathological act. The patient exposed himself to punitive action with an indifference to outside forces which can arise only when internal emotional necessity consumes all of the psychic energy. Having accomplished his escape from an intolerable situation, he now took steps to seal off the evidence of his emotional distress by denying his illness entirely. At the same time he sought to remain in the Army. Life as a civilian apparently offered him no solution of his problems.

Review of the literature on malingering has been omitted because of space limitations. Forensic issues and techniques for detecting deception have been emphasized at the expense of detailed case reporting and analysis of the underlying psychopathology.

DISCUSSION

Malingering is a psychopathological process in which the individual is convinced he is fabricating symptoms in order to gain a consciously desired end, and which serves the function of denying the existence of threatening and painful unconscious conflicts. The absence of a confession leaves the diagnosis open to serious doubt (2, 3). Such individuals are severely ill and should be rejected when diagnosed at induction centers, and discharged from Army hospitals. Michael (5) says:

"Close observation of suspected malingerers revealed personality disorders and maladjustments in civilian life. Pure, unalloyed malingering does not exist for there is something fundamentally wrong with the individual who uses such means to evade the Army. The number who are likely to mangle are so few, their services so poor, that it is best to do without them."

The psychopathology of malingering which leads to self-mutilation has been studied by Menninger (4). He has found that the act represents a partial suicide, occurring in disturbed masochistic individuals who may have a manifest schizophrenic illness.

Malingering has a further usage among a part of the medical profession and among laymen: namely, to describe any mental illness in which the symptoms are apparently utilized to gain a consciously desired end. The term is applied with or without discriminating evaluation of the degree of control over the symptoms which the patient exercises. The term has been variously applied to psychoneurotics, psychopaths and the milder grades of psychotics. It has even been applied hastily by the indiscriminating to cases which have been found, after careful medical examination, to be due to organic disease.

Psychoneurosis is a disease process in which conflicting and incompatible impulses reach a compromise solution, each impulse getting partial and altered expression by means of symptom formation. This is not a voluntary process. When the symptom is formed there are so-called "secondary gains," which means that the individual may derive more or less objective advantage from his illness which is apparent to himself and his fellows. The primary gain is an unconscious one, the compromise resolution of the conflict. In the Army neurotic conflicts are often deepened by the presence of external frustrations, threats of punishment for transgressions of rules or threats of loss of prestige through failure to live up to the standards of efficiency. The solution which is sought to decrease such increments of neurotic conflicts may be the unconscious attempt to escape from the situation where these responsibilities are thrust upon him. The stimulus to the search for a way out is the state of anxiety which in this case is called "objective anxiety," since

it originates in part in external threats to the psychic equilibrium. The greater the quantity of objective anxiety the more likely it is that the patient will be consciously aware of the benefits to be derived from his illness. In this manner he can defend himself against the recognition of the internal and endogenous sources of conflict which arise from past experience and are the major cause of all neuroses. The recognition of secondary gains by Army personnel is called *malin-gering*, since they do not consciously recognize the hidden motivations. Due to the obvious, palpable, severe frustrations imposed by Army life, the authorities and soldiers are motivated to detect and condemn vigorously the defense formations (in the only form in which they can understand them: i.e., the secondary gains) which threaten group integrity and awaken individual fears. In civilian life the patient's family and friends hesitate to point out the existence of secondary gains, and often help the patient to conceal from himself the existence of these gains. When attention is focussed on the conscious element of the illness rather than the underlying disease, the differentiation of hysteria from *malin-gering* bogs down in a morass of undefined terms and fragmentary observations, facilitating the rule of prejudice over medical thinking.

Since the ego does not function in a vacuum but only in relationship to others, its strength is in part the product of the supporting forces operating upon it. The Army is not an avowed therapeutic institution and does not aim to offer to any man a cure for a neurosis. It is intricately organized, however, to assist in the control of the objective anxiety which its own demands may threaten to increase.

When a soldier yields to anxiety by the development of a neurotic illness he threatens the equilibrium of all. The healthy dissociate themselves quickly from his defection; the neurotic more slowly, if at all. The borderline neurotic's process of freeing himself from the temptation to do likewise may be incomplete; the gap is bridged by hostile denunciation of the sick person. The escape from duty seems to him the whole nature of the process; his own tension prevents him from making an objective evaluation of the personality resources of the object of his punitive recriminations.

Discipline is a powerful supporting force when it is applied realistically to weld the group together. When it becomes a desperate punitive action to whip an organism which has passed its limits of endurance, it serves to confirm the fears of barbaric and intolerant authority which lurk within the unconscious of all men. Nevertheless, the effective exercise of discipline requires an equitable application of demands by leaders so that the needs of the group take precedence over the personal preferences and inclinations of the individual. Such demands increase the individual's effectiveness by resolving ambivalences and counteracting asocial ten-

dencies. Groups may gain increased effectiveness from an increasing severity of discipline. External danger sanctions autocratic methods.

The problem of management of the so-called *malin-gerer* in the Army is in reality the problem of the management of the neurotic and the so-called "psychopath." Will we accomplish our purpose of creating a fighting, working Army better by punitive treatment of the mentally ill?

There is an historical progression away from the punitive management of the mentally ill. Today the psychotic patient is universally treated as a medical case, not as a criminal. In modern times a skirmish of forces disputing for the management of the psychopath has emerged, the psychiatrist most articulate on one side, the exponent of time-honored legal processes on the other.

The individual who develops an incapacitating neurotic illness in the Army offends against the social code in that he fails to perform his function as a soldier after having been designated by legal processes for such duty. In all armies such a defection constitutes a serious, reprehensible action. Such failure is a much more evident threat to the group as the external danger grows greater.

There is no doubt that autocratic discipline can motivate certain borderline neurotics to continue in army service. On the battlefield different and more direct methods of handling defections are used than in the faraway wards of the named general hospitals.

The ultimate problem is an ethical one which involves the nature of our culture itself. The ultimate goal of military action of the United States is expressed in the aspirations of its people for a better world in which human reason will gain ascendancy over the irrational psychological forces which threaten our destruction (1). Military victory over the forces which personify the irrational and aggressive impulses is an essential first step. We believe in the dignity of the individual and respect many kinds of human excellence, regardless of the limitations which show themselves under special circumstances. Condemnation of human beings because of their limitations creates new kinds of unfitness; punishment without creative purpose stops growth, and leads to inhibition, sycophancy, and self-debasement.

The failure of the neurotic in the Army arises from defects in his motivation. The higher the level of group cohesiveness and devotion to the common goal, the fewer will be the neuropsychiatric casualties in training and in battle. Only in part and for a limited number of them could primitive and sadistic disciplinary tactics offer even a partial cure. We believe that the mental healthiness of the vast majority of the Army personnel is a concrete fact, and therefore punitive methods of treating the mentally ill can only be an unnecessary relinquishment of hard-won progress.

DISCUSSION BY COL. FRANKLIN G. EBAUGH, M.C.

Neuropsychiatric Consultant, Eighth Service Command

Any further discussion by myself or others on this case would be extremely out of place. It would be like adding guilt to the gilded lily. It is pleasing to know

that in the case conferences in this service command we have material of this quality prepared for discussion. Goldbricking, in the final analysis, is a punitive con-

cept and not a medical or therapeutic concept. All medical officers naturally are interested in the motivations of behavior and the choice of symptoms as well as secondary gains. A study of so-called (or rather, miscalled) malingerers and goldbricks would not only add to a greater understanding of the motivations of behavior, but to the creation of therapeutic attitudes which would result in the soldier's accepting his responsibilities more efficiently with improvement in individual and group morale.

PSYCHOANALYTIC CONTRIBUTIONS TO PSYCHOSOMATIC MEDICINE

A BIBLIOGRAPHY

MARTIN GROTJAHN

It has never been established whether, or to what extent, reading forms an essential part of the study of medicine. No doubt many good students and, even more frequently, many excellent doctors indulge rather rarely in reading. As in the time of Hippocrates, the physician learns most from his patients and his teachers by discussion and by personal contacts. Often it seems as if reading has only a supporting and, possibly, only a substituting function.

The process of learning in psychiatry and psychoanalysis and in psychosomatic medicine is quite different from the process of learning in internal medicine or surgery. Learning psychiatry is a more subjective procedure, partly based on experiencing one's own emotional processes and on insight into one's own unconscious. A psychiatrist may learn much from a schizophrenic patient, he may learn much from his teacher's demonstration with psychiatric patients; but he may also learn much from deeper personal experiences such as a trip across the ocean or the last hours of a first leave. He may also learn while reading—whether it be Shakespeare or Freud.

In psychosomatic medicine, reading is a necessity. The situation is approximately that of learning a foreign language. It cannot be learned by reading alone, but without having learned to read and without having learned to use reading for learning, the knowledge of the foreign language would remain utterly primitive.

It is attempted here to compile a bibliography or reading list of psychoanalytic contributions to the field of psychosomatic medicine. (The psychoanalytic research, as presented in these papers, constitutes that part of psychosomatic medicine which distinguishes it from other parts of general and internal medicine.) It is assumed that the basic facts, ideas and conceptions of psychoanalysis are known to the reader and therefore the funda-

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mentals of psychoanalytic reading need not be mentioned here. It is also assumed that the literature of internal medicine, as reflected in the field of psychosomatic medicine, is known in its basic publications. Furthermore, it should be stated that the psychosomatic literature from the internal medical side is adequately covered by the three outstanding textbooks on psychosomatic medicine, *Emotions and Bodily Changes*, and *Psychosomatic Diagnosis* by Flanders Dunbar, and *Psychosomatic Medicine*, by Edward Weiss and Spurgeon English.

Surprisingly enough, a psychoanalytic reading list with special regard to psychosomatic topics has not been published before. Many of the papers may have been mentioned in these two textbooks, but in Dunbar's *Emotions and Bodily Changes* it is difficult to extract them from the overwhelming flood of otherwise important sources. So far as the book of Weiss and English is concerned, it should be stated that in spite of the unquestionable advantages of clarity and lucidity of the presented material, the bibliography is its weakest point. Both books adequately cover the enormous field of psychosomatic medicine so far as it borders on internal medicine, but they do not emphasize the even more important field which borders on psychiatry and contains the wealth of psychoanalytic contributions.

Reading lists are usually welcomed by people who do not read and who nurse their enthusiasm for reading lists from student days, when they meant salvation. They are put aside with the comfortable feeling of falling back on them whenever their special topic requires some special attention. To keep a bibliography for emergency situations is probably wise. To consider them however as a royal road to learning is a mistake.

PART I. GENERAL ORIENTATION ABOUT THE PSYCHO-ANALYTIC FUNDAMENT OF PSYCHOSOMATIC MEDICINE

Alexander, Franz: *The Relation of Structural and Instinctual Conflicts*. *Psychoanalyt. Quart.*, 2: 181, 1933.

The Logic of Emotions and its Dynamic Background. *Internat. J. Psycho-Analysis*, 16: 399, 1935.

Logical thinking is based on intellectual syllogisms. The logic of emotions is based on emotional syllogisms. The logic of intellectual thinking is the result of external experiences. The logic of emotions is the result of internal experiences. Depriving these emotional sequences of their content and giving attention to the dynamic quality leads to the finding of the direction of the tendencies and is called "vector analysis." In the investigation of the psychogenic organic disturbances the great value of this vector analysis can be established. For example, the stomach functions can be disturbed by different emotions having the same dynamic direction: the wish to receive help or love, or the wish aggressively to take something away. The same group of wishes may also disturb other organic functions which involve incorporation such as the inspiratory phase of breathing or the act of swallowing. Other dynamic qualities of similar importance are the eliminating and retentive tendencies. These three main classes of tendencies express fundamental urges. The equilibrium between the three vector qualities, incorporation, elimination and retention, represents the fundamental dynamics of the biological process called "life."

Alexander, Franz: *The Medical Value of Psychoanalysis*. Norton, 1936.

Addenda to the "Medical Value of Psychoanalysis". *Psychoanalyt. Quart.*, 5: 548, 1936.

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Fundamental Concepts of Psychosomatic Research; Psychogenesis, Conversion, Specificity. *Psychosom. Med.*, 5: 205, 1943.

The fundamental psychological and physiological differences between conversion symptoms, vegetative neuroses, and organic disease are elaborated. A conversion symptom is a symbolic expression of a well defined emotional tension content—an attempt at relief. It is expressed by the voluntary neuromuscular or sensory perceptive systems whose original function is to express and relieve emotional tension. The symptoms express at the same time the repressed emotion and its rejection. That it offers only partial relief is the

pathological part of the symptom. A vegetative neurosis (like emotional hypertension) is not an attempt to express an emotion but is the physiological accompaniment of constant or periodically recurring emotional states. The hypertensive patient is under a constant or frequent not repressed, but unexpressed emotional tension which is not drained either by psychoneurotic symptoms or by legitimate expressions of aggressions. These patients cannot give legitimate expression to their emotions because of a neurotically exaggerated sense of shame or guilt. The hysterical conversion symptom is an attempt to relieve an emotional tension in a symbolic way; it is a symbolic expression of a definite emotional content. A vegetative neurosis consists of a psychogenic dysfunction of a vegetative organ which is not under control of the voluntary neuromuscular system.

Blanton, Smiley: *Analytical Study of a Cure at Lourdes*. *Psychoanalyt. Quart.*, 9: 348, 1940.

After describing one verified "miraculous" cure, the author offers some psychoanalytic explanation for such cures: in the process of removing libidinal drive from the maternal love object to acceptable objects in the outer world, the individual meets many difficulties and develops both a wish for and a fear of punishment by the mother object. The sick people of Lourdes have reached the limit of their emotional and physical capacities to adjust to the demands of their illness. They can no longer reject, and yet they cannot quite accept, death. To understand the force of the transference which occurs at Lourdes, analysis of the mother worship is given. The primitive mother worship is strongly reinforced by the psychology of the group at Lourdes. The value of the Virgin Mother as a transference object is infinite. In the cases at Lourdes there is a quickening of the healing processes due to the emotion aroused by the transference to an all-powerful, all-loving Virgin Mother to an extent which has not yet been realized or accepted by the medical profession.

Deutsch, Felix: *The Associative Anamnesis*. *Psychoanalyt. Quart.*, 8: 354, 1939.

In a study of some forty patients complaining of a variety of symptom complexes, chief among which was asthma, the psychosomatic forces operating in the patients' illnesses were brought to the fore by a technique of associative anamnesis. The patient is stimulated to give all information describing his organic complaints without making him aware of a psychological background in his illness. The patient is allowed to talk freely and the examiner simply waits, sometimes repeats a

point, always tries to use the patient's own words—stimulating him in this way to further associations. The physician is passive, listening, but in a state of concentrated attention. A very helpful question is: "What do you mean?" This kind of interview is based on positive transference and therefore the patient sometimes may feel relieved after the interview. Some excellent case histories give a clear picture of this interesting method which may be "easy" to apply (as the author assures), if the physician is capable of controlling his own anxiety.

Dunbar, Flanders: *Emotions and Bodily Changes*. Columbia University Press, 1938.
Character and Symptom Formation. *Psychoanalyt. Quart.*, 8: 18, 1939.

The answer to why one patient expresses anxiety in action, another in a neurosis, and a third one in organic disease lies probably in the various combinations of heredity and constitutional elements, specific conflicts and the personality organization, plus possible adventitious factors. In the course of the author's investigation of 1300 patients, coincidences were examined and observed from the point of view of their relevance to the disease process under construction. Spontaneous statements made by these patients are significant. The accident-prone patient says: "I always have to keep working. I can't stand around doing nothing. When I get mad, I don't say anything—I keep it in and do something." The hypertensive patient says: "I always have to say 'yes.' I don't know why. I am always furious afterwards." The arthritic patient says: "Everything I do hurts but I have to keep on moving."

Ferenzci, Sandor: Thinking and Muscle Innervation. *Psychoanalyt. Quart.*, 9: 1940.
Sigmund Freud, 1856-1939. *Psychoanalyt. Quart.*, 9: 163, 1940.

The Freud Number of the *Psychoanalytic Quarterly* deserves special interest. In fifteen papers, Sigmund Freud is viewed from different fields of science and by different personalities, resulting in an impressive study of psychoanalysis as focussed in the person of its creator. Ernst Simmel writes about the man Freud, the discoverer of man in man. A. A. Brill reminisces about his friend Freud. Helene Deutsch gives a contribution to the history of the psychoanalytic movement, the teacher Freud and his pupils. Franz Alexander describes the "Bergasse 19" and reports various discussions there. Martin W. Peck limits his contribution to one page, but gives a graphic picture of his visit with Freud. In a few com-

ments, Helen Vincent McClean opens a new approach to Freud's last book, "Moses and Monotheism." McLean states: "This book was Freud's credo; an expression of his belief in man's power for intellectual and emotional development." Later, in connection with Freud's work, "Totem and Taboo" she writes, "Anthropologists are still busily denying that Freud's thesis of the primal horde has any historical truth. Perhaps historically viewed the anthropologists are correct and Freud is wrong. Psychologically, however, the renunciation by the sons of the wish to kill the father and the identification with the loved father was probably a first step in the social and moral development of man." Smith Ely Jelliffe outlines the influence of psychoanalysis on neurology. His conclusions culminate in the sentence "To me psychoanalysis has liberated neurology from some of its invested and fixed patterns of thinking." More detailed and more critical is Paul Schilder's evaluation of the influence of psychoanalysis on psychiatry. Psychoanalysis was the end of "mosaic psychology." Schilder makes a special point by stating that the possibility of understanding a symptom as the expression of psychological tendencies does not prove that the symptom is psychogenic in character. According to Schilder, the neglect of the external world and the over-rating of the body as if it were independent of the outward world is deeply embedded in psychoanalytic thinking. The recent emphasis on ego problems corresponds to an intent to overcome these deep-seated difficulties in the structure of psychoanalysis. In organic psychosis, changes are found which remain in the periphery of the ego. The indestructible center of the personality is aware of the change. A case of general paresis, for instance, is aware of the impairment of his thinking and judgment, and reacts to this incompleteness with grief and despair. Freud's influence on psychiatry in America is reviewed by Glenn Myers. In his clear style and his stimulating manner, Bernard DeVoto analyzes the manifold and strong influence of Freud in American literature. Geza Roheim views Freud and his work, from the anthropological point of view. The "Problem of Art" in Freud's writing is discussed by Richard Sterba. Atwell Westrick gives tribute to psychoanalysis from his experience as a criminologist and judge of the superior court in Santa Barbara, California. The paper of H. F. Brown is concerned with Freud's influence on American psychology. This issue of the *Psychoanalytic Quarterly* ends with a contribution by Ruth Mack Brunswick about "the pre-oedipal phase of the libido development."

Groddeck, George: *The Book of It. Nervous and Mental Dis.*, N. Y. 1928.

Psychic Treatment of Organic Diseases. British J. of Medicine and Psychology, 9: 179, 1928-29.

Including the work of George Groddeck in a reading list urgently needs a few words of explanation and warning to the reader who is not familiar with the special merits and peculiarities of this author. Historically speaking, he is one of the most important pioneers of psychosomatic medicine—a name which he would despise. His way of thinking, his point of view, his style of writing and teaching may look very unlike science, and may be considered to be much closer to art or "Weltanschauung" than would be the case with any other author of his time. From him, Sigmund Freud took over the term "Id" (It—as Freud called it) which was for Groddeck the source of all life. Life expresses itself in different ways: in symbols, in dreams, in art, in work, in language; and only another form of expression is sickness. George Groddeck should not be read with scientific skepticism. He should be read with something that could be called the openmindedness of a psychoanalytic sightseer. That was the reason he did not formerly address a scientific audience in his book, but called it "Letters to a Friend." (See also Martin Grotjahn: *George Groddeck and his Teachings about Man's Innate Need for Symbolization*, to be published shortly in the Psychoanalytic Review.)

Hendrick, Ives: *Facts and Theories of Psychoanalysis*. Knopf, Second Edition, 1939.

Five years have passed since the first edition of this book was published. It was then an excellent book and it is now even better because the author succeeded in including the development of psychoanalysis within these years. So youthful a science as psychoanalysis develops more during a five-year span than the older disciplines, and the extension of psychoanalysis to new fields is of recent occurrence. In America, the flowering of a closer relationship between psychoanalysis, organic medicine and general psychiatry took place to a much greater extent than has ever been possible in Europe. The constantly increasing recognition and acceptance of psychoanalysis as a method of research by American medicine as well as the recent development of specialized training in psychoanalysis has become more and more manifest.

Levine, Maurice: *Psychotherapy in Medical Practice*. New York, The Macmillan Company, 1942.

The general practitioner practices more psychotherapy than he recognizes. The good physician

is more a psychotherapist than he himself knows or even cares to know. Without stating it in so many words, Maurice Levine attempts to give an understanding description of medical treatment as an art. In this book rules are not given as rules, but they are described in their meaning for the patient as a therapeutic experience. In this way, the author gives an analysis of the meaning of psychotherapeutic technique. Like a good analyst, he gives these interpretations in non-technical terms, step by step, so that the reader, having finished the book, and having read about different terms and methods of psychotherapy, emerges with a fuller understanding of the entire psychotherapeutic situation between patient and physician. The book belongs in the hands of medical students and may shorten the time and improve the result of development from a young physician to an experienced one.

Romano, John: Emotional Components in Illness. J. A. M. A., 112: 2387, 1939. Conn. State Medical Journal, 7: 22, 1943.

Schilder, Paul: *The Image and Appearance of the Human Body*. London, Kegan, Paul, Trench, Trubner & Co. Ltd., 1935.

Goals and Desires of Man. New York, Columbia University Press.

A Psychological Survey of Life. New York, Columbia University Press.

Simmel, Ernest: The Doctor Game Illness and the Profession of Medicine. Internat. J. Psycho-Analysis, 7: 470, 1936.

Stevba, Richard: *Freud's Libido Theory*. New York, Norton, 1942.

Weiss, Edward, and English, Spurgeon: *Psychosomatic Medicine*. Philadelphia, W. D. Saunders Company, 1943.

Weiss, Edward: Bodily and Mental Pain. Internat. J. Psycho-Analysis, 15: 1, 1934.

Wilson, George: The Transition from Organ Neurosis to Conversion Hysteria. Internat. J. Psycho-Analysis, 24: 23, 1938.

Journals:

International Journal of Psychoanalysis, London.
The Psychoanalytic Quarterly, New York.
Psychiatry, Washington.
Psychosomatic Medicine, Baltimore.

PART II. PSYCHOANALYTICAL RESEARCH ON SPECIFIC SYNDROMES

a. The Cardiovascular Syndrome

Alexander, Franz: Psychoanalytic Study of a Case of Essential Hypertension. Psychosom. Med., 1: 139, 1939.

This clearly written case report gives a dynamic picture of the personality make-up of a hyperten-

sive patient, shows the correlation between the patient's blood pressure and his changing emotional state, and investigates the problem of whether there are specific emotional tensions which have a definite influence upon the blood pressure. The observations were made during the analysis of a 47 year old male patient who was suffering from pronounced, although not excessive, essential hypertension of the fluctuating variety. The most conspicuous feature in his personality make-up was a double attitude of overt subjection to external code and to his conscience, with an extremely strong emotional rebellion against this submission. This internal rebellion showed itself in drinking and promiscuity. The unconscious dynamic background of the overt picture revealed an "emotional paralysis." Each of the two polar opposing tendencies blocked the expression of the other. This emotional paralysis was clearly expressed in the patient's characteristic "hypertension dreams," in which he undertook to do something and found himself unable to do so. Viewing the life history of this patient from a bird's eye view, it could be demonstrated how the gradual metamorphosis of an over-aggressive, successful, domineering young man determined for leadership changed into a shy, conforming, overly modest and unexpressive person. The patient's father attempted to break the little rebellious Oedipus, and he succeeded only too well. In 201 analytic sessions the patient's blood pressure was taken and compared with his emotional state. An examination of the analytic material during the sessions when the blood pressure dropped showed marked relief from emotional tension, whereas in the hours during which it rose it showed increased resistance, and discomfort.

Alexander, Franz: Emotional Factors in Essential Hypertension. *Psychosom. Med.*, 1: 173, 1939.

Increased blood pressure as a normal reaction to rage is a utilitarian reaction of the organism preparing it and making it fit for flight or fight—which, in the case of the hypertensive patient, does not take place because of a paralysis of the emotions. Neither the passive, dependent attitude nor the hostile impulses may be expressed freely, but the two opposing emotional attitudes block each other. Social life today requires an extreme control of hostile impulses and this may be the reason for the increased frequency of hypertension. The chronic inhibited rage may lead to a chronic elevation of the blood pressure. Analysis may help to solve the pronounced conflict between passive, dependent, feminine receptive defenses and over-compensatory competitive, aggressive, hostile im-

pulses which lead to fear and increased flight from competition to the passive, dependent attitude.

Saul, Leon: Hostility in Cases of Essential Hypertension. *Psychom. Med.*, 1: 153, 1939.

In seven cases of essential hypertension, the following similarities were found by psychoanalytic investigations:

- (1) The prominence in every case of a dominating mother with submissiveness and oral dependence toward her, transferred in the cases of two men to their fathers; unsuccessful nearly conscious rebellion against this submissiveness, and chronic unexpressed rage at unsatisfied oral demands and at independent activity and work.
- (2) Marked inhibition of heterosexuality, although indulged to some extent, despite anxiety.
- (3) Intense, chronic, inhibited hostilities not adequately repressed and bound, as with cases of organized neurosis.
- (4) The hypertensive individuals were neither weak and dependent nor aggressively hostile, but were blocked in both directions.

During periods when *either* trend was satisfied, the blood pressure was markedly lower.

Schwartz, Louis Adrian. An Analyzed Case of Essential Hypertension. *Psychosom. Med.*, 2: 468, 1940.

b. The Gastrointestinal Syndrome

The Influence of Psychologic Factors Upon Gastrointestinal Disturbances. A Symposium. A report upon research carried on at the Chicago Institute for Psychoanalysis. *Psychoanalyt. Quart.*, 3: 501, 1943.

- (1) Alexander, Franz: General Principles, Objectives, and Preliminary Results.
- (2) Bacon, Catherine: Typical Personality Trends and Conflicts in Cases of Gastric Disturbances.
- (3) Wilson, George W.: Typical Personality Trends and Conflicts in Cases of Spastic Colitis.
- (4) Levey, Harry B.: Oral Trends and Oral Conflicts in a Case of Duodenal Ulcer.
- (5) Levine, Maurice: Pregenital Trends in a Case of Chronic Diarrhea and Vomiting.

In this symposium, Franz Alexander gives the first report (1934) about the research on the Influences of Psychological Factors upon Gastrointestinal Disturbances, in which the Chicago Psychoanalytic Institute engaged as a part of the systematic investigation of the influence of psychic factors upon the vegetative systems. The most conspicuous features in the psychoanalysis of the gastric cases (three gastric neuroses and nine duodenal ulcers) is intense receptive and acquisitive wishes against which the patient fights because

they are connected with extreme conflict in the form of guilt and of inferiority feelings. The psychoanalytic investigation of these gastric cases may be summarized with the slogan, "I do not want to take or to receive; I am active and efficient and have no such wishes." In some of the cases, the receptive wishes are not internally inhibited but externally by circumstances. The psychoanalytic formula of the five studied colitis cases is: "I have the right to take and demand for I always give sufficiently. I do not need to feel inferior or guilty for my desires to take because I am giving something in exchange for it." The diarrhea serves as a substitute for the giving of real values. In the five analyzed constipation cases, the dynamic background of the symptom may be verbalized as follows: "I do not take or receive and therefore I do not need to give." The constipation is a reaction against the obligation to give, and is linked with the fear of castration. The gastrointestinal tract according to its three major functions of in-taking, retaining, and eliminating is very suitable for the expression of these three elementary tendencies if their normal expression through the voluntary motor system or the sex apparatus is inhibited through inner conflicts. The upper end of the tract is well fitted to express the receptive or taking tendencies, whereas the lower end is more suitable for the expression of giving and retentive tendencies. In-taking may be passive receiving, or an aggressive taking, and also eliminating may be a giving of positive value or an aggressive attack. Catherine Bacon gives a very clearly written report about the typical personality trends in cases of gastro-intestinal disturbances. George Wilson gives the analytic story of some cases with spastic colitis. Harry B. Levey describes the oral trends and conflicts in cases of duodenal ulcers, and Maurice Levine reports the analysis in a case of chronic diarrhea and vomiting. This symposium is a basic key-stone in the building of modern psychosomatic medicine—a summary of the first practical results, a unique proof of psychoanalytic group work, and a masterly example of the methodical approach of psychoanalysis in the field of psychosomatic medicine.

- Alexander, Franz: Gastrointestinal Neurosis. In "Diseases of the Digestive System," by Sidney A. Portis. Lea & Febiger, Philadelphia, 1941.
 Masserman, Jules: Psychodynamics in Anorexia Nervosa and Neurotic Vomiting. *Psychoanalyt. Quart.*, 10: 211, 1941.

The analysis of a patient with character difficulties, neurotic vomiting and diarrhea and the syndrome of anorexia nervosa is outlined.

Portis, Sidney A.: *Diseases of the Digestive System*. Philadelphia, Lea & Febiger, 1941.

Van der Heide, Carel: A Study of Mechanisms in Two Cases of Peptic Ulcer. *Psychosom. Med.*, 2: 398, 1940.

After a well written outline of the literature, the author reports two analyzed cases of peptic ulcer.

Waller, J. V., Kaufmann, M. R., and Deutsch, Felix: Anorexia Nervosa. A Psychosomatic Entity. *Psychosom. Med.*, 1: 3, 1940.

After a short review of the literature, going back to 1694, a clinical picture of anorexia nervosa is given centering around the symptoms: reaction to food constipation, and amenorrhea. In these cases the act of eating is symbolically equated to sexuality, particularly with the fantasies of impregnation. The complete rejection of eating is understandable only in terms of its symbolic significance and not of its original biological function. Gratification of the pregnancy fantasy may be expressed by over-eating or gorging. As a correlate to the symbolic impregnation, constipation and amenorrhea are observed. Two excellent case histories are given as illustration.

c. The Respiratory Syndrome

Dunbar, H. Flanders: Psychoanalytic Notes Relating to Syndromes of Asthma and Hay Fever. *Psychoanalyt. Quart.*, 7: 25, 1938.

The psychoanalysis of one woman, age 40, suffering for thirty years with asthma, and for ten years with hay fever; two men, one, 40 years of age, suffering from asthma for twenty-eight years; and the other man, age 25, suffering from hay fever for twenty years, is reported. The aim of the report is to give new clinical material in detail with special attention to observations of simultaneous sequences in psychic and somatic spheres. The intention is not to relate the characteristics set down exclusively to the syndromes of asthma and hay fever, but only to point out that they have been found in these patients in quantitative prominence and in specific relationship to attacks. The psychoanalytic material in all three patients is as follows: (1) disturbances of sexuality involving alienation from the female role in the woman, and feminine identifications in the men; (2) marked predominance of anal and oral sadistic material, involving sexualization of the respiratory function and great interest in the sense of smell. The predominances of anal material and aggression in the asthmatic cases is so general a finding that it is probably to some degree a relevant coincidence, as is also the general impression that the asthmatic character is compulsive. (3) The de-

velopment of only a few protective rituals or phobias except in periods of freedom from somatic symptoms. The hostility seems constantly on the point of being carried into action and the patients are in constant terror. (4) There is not only intense hostility and aggressiveness but also a marked tendency to act these out. (5) A weak ego organization with an inadequately assimilated superego, which is further projected and externalized during the analysis, creates a difficult problem in management.

French, Thomas: Psychogenic Factors in Asthma. *Am. J. Psychiat.*, **96**: 87, 1939.

In this short paper, French gives a bird's eye view of his work, later published as a book, containing the psychoanalytic investigation of patients with asthma.

French, Thomas, and Alexander, Franz: Psychogenic Factors in Bronchial Asthma. *Psychosom. Med. Monograph IV*, 1941.

McDermott, N. T., and Cobb, S.: A Psychiatric Survey of Bronchial Asthma. *Psychosom. Med.* **1**: 203, 1939.

Oberndorf, C. P.: The Psychogenic Factors in Asthma. *Internat. J. Psycho-Analysis*, **17**: 1936.

An excellently written analytic case report is given. The emotional conflict of the patient centered about the repressed desire for love from her mother, and led to asthmatic attacks. For a certain period of time, the asthma disappeared when the patient was able to find an outlet for her emotions in violent outbursts. The analysis revealed a conflict between aggressive masculine and passive feminine tendencies. The respiratory disorder was associated by the patient with masculinity.

Saul, L. J.: Psychogenic Factors in the Etiology of the Common Cold and Related Symptoms. *Internat. J. Psycho-Analysis*, **19**: 451, 1938.

Evidence is presented which confirms the observation that emotional factors may be of prime importance in certain cases of the "common cold" (including sore throat and laryngitis), i.e.: The "cold" may be essentially a neurotic symptom.

Weiss, Edwardo: Psychoanalysis Eines Falles Von Nervoesem Asthma. *Int. Zschrft. f., Psa.*, **8**: 440, 1922.

This short paper is an important milestone in the history of psychoanalytic and somatic medicine. Here Edwardo Weiss (formerly Rome, now Chicago) anticipated most of the cardinal points in the psychogenics of asthma as verified later by the work of the Psychoanalytic Institute in Chicago.

d. The Endocrine Syndrome

Benedek, Theresa and Rubenstein, Boris: The Sexual Cycle in Women. *Psychosom. Med. Monographs. III.*, Nos. 1 and 2, 1942.

Daniels, George E.: Analysis of a Case of Neurosis with Diabetes Mellitus. *Psychoanalyt. Quart.*, **5**: 513, 1936.

A thirty-three year old married businessman was referred to psychoanalysis because of a severe neurosis associated with diabetes. The man was observed over a period of fifteen months, during which he had 218 analytic hours. The life history showed an extremely shy and repressed child whose nickname was "the preacher," and who was accustomed to pacifying his mother in family situations. At the age of ten he got a severe castration shock after which he gave up masturbation. To his first heterosexual experience, he reacted with an asthma attack. He was frustrated both in marriage and his work, and shortly before the onset of his neurosis and diabetes, felt that it would be a relief to be ill. The sexual repression was so complete that even the usual form of hysterical conversion was not accepted by the patient. He might be called a strong oral character, but even his oral traits were so strongly repressed that for instance, the development of alcoholism was not possible. The conflict was acted out largely at the metabolic level and established at this level by the erotization of the anxiety. In the discussion, Dr. Bertram D. Lewin made the remark that the first discovery about diabetes by Minkowski was based on psychological observation, and the first dog without the pancreas was a "problem dog." Dr. Robert Fliess tries to clarify the symptoms in purely diabetic symptoms and purely psychic symptoms, (as the tics, choking sensations and ambiguous symptoms, cessation of libido, flashes and anxiety). Dr. Smith Jelliffe reports the case in which during periods of depression the patient did not show any sugar, but in the well periods had a definite diabetes which again and again cleared up with the onset of a depressed period.

Orr, Douglas W.: Pregnancy Following the Decision to Adopt. *Psychosom. Med.*, **3**: 441, 1941.

The married couple reported by the author had been infertile for many years. Psychoanalysis of both partners, operations, and endocrine treatment of the wife could not break the vicious circle of psychic and somatic facts resulting in infertility. The decision to adopt a child broke the circle and it was then the wife became pregnant. It seems that conception and adoption occurred the same day.

MEETINGS

A joint meeting of the American Society for Research in Psychosomatic Problems will be held with the American Psychiatric Association on Monday, May 15, at 11:00 p.m., at the Bellevue-Stratford Hotel in Philadelphia. The program will be:

PSYCHOSOMATIC IMPLICATIONS OF CHRONIC DISEASE

The Prevalence of Chronic Disease

George St. John Perrott

Psychosomatic Disorders as Revealed by the Examination of 13 Million Registrants.

Colonel Leonard G. Rowntree

Criteria for Therapy in Psychosomatic Disorders

Flanders Dunbar and Jacob Arlow

Panel Discussion

Major General George Chisholm

Lieutenant Colonel J. D. Griffin

Lieutenant Colonel William Menninger

Miss Charlotte Carr

The annual meeting of the American Society for Research in Psychosomatic Problems will be held at the Stevens Hotel in Chicago on Saturday, June 10, and Sunday, June 11, preceding the convention of the American Medical Association. The tentative program will be:

Saturday A.M., June 10

Joint Conference of the Committees on Animal Experimentation and on Physiological Mechanisms on "Endocrinology."

Saturday Afternoon, June 10

Meetings and Reports of Research Committees.
Business Meeting

Saturday Evening, June 10

Banquet

Sunday A.M., June 11

Studies of Syncope, Vasodepression, Carotid Sinus and Hysterical Syncope

John Romano and George Engel

Psychosomatic Factors in Pruritis

Milton Rosenbaum

Suggestions Preliminary to a Psychosomatic Nosology

Flanders Dunbar and George Soule

A symposium on the role of the autonomic nervous system in functional disorders will be held on Sunday afternoon.

A notice giving complete details will be sent to the membership prior to the meetings.

COMMITTEE ON PSYCHOLOGICAL METHODS AND CONCEPTS, Dr. Bela Mittelman, Chairman

This Committee takes the place of the Committee for Research in Projective Techniques. A preliminary

meeting was held in New York on January 30, at which a number of methods and concepts were suggested for study. The possible functions of the Committee were outlined as follows:

1. A general survey of the literature and of all current research in the various fields.
2. Joint meetings with other organizations, such as the American Psychological Association, the American Psychiatric Association, the Rorschach Institute and the Eastern Psychological Association.
3. As a result of the first project, new research might be formulated and encouraged.

The next meeting of the Committee will be held in Philadelphia at the time of the annual meeting.

COMMITTEE ON CUTANEOUS AND ALLIED DISEASES, Dr. John Millet, Chairman

The first meeting of this Committee was held on January 14 in Chicago. It was decided the Committee's first task will be to compile a bibliography, bringing the data of 1941 to 1943 up to date. This may be published as a review of literature in the Journal or as a monograph.

Another meeting of the Committee is planned for March.

COMMITTEE ON PSYCHOSOMATIC APPROACH TO SOCIAL AND CULTURAL PROBLEMS, Lawrence K. Frank, Chairman

At a meeting of the Committee on November 17, 1943, a report was received from the Sub-Committee on the Study of Illness Among Children of Different Cultural Backgrounds, of which Dr. Milton Senn is temporary chairman.

In addition to the November 17 meeting, a second meeting was held in New York on January 27. At these meetings, it was decided to make a preliminary exploratory survey of clinic and hospital records in several areas of the city. A social worker at the New York School of Social Work has agreed to work on this project. The preliminary survey was thought of as furnishing clues as to the incidence of various diseases and the types of recorded material available for such a study. The preliminary survey will be used to decide upon the focus of further work.

NORTH MIDDLE-WESTERN REGIONAL COMMITTEE

A North Middle-Western Regional Committee was formed in Chicago on January 14. Because transportation problems growing out of the war emergency have created a need for regional meetings in all medical societies, it seems advisable to stimulate interest in psychosomatic problems in small local societies at this time.

BOOK REVIEWS

ALEXANDER, FRANZ: *Our Age of Unreason. A Study of the Irrational Forces in Social Life*. New York & Philadelphia, J. B. Lippincott Co., 1942, pp. 341. \$3.00.

PART ONE: FROM REASON TO UNREASON

PART THREE: FROM UNREASON TO REASON

In this book Dr. Franz Alexander attempts three things which he interrelates: (1) a history of political thought; (2) a theory of emotional disturbances; (3) a psychological analysis of social systems and recent events. This reviewer is to discuss only parts (1) and (3), since part (2) is to be reviewed separately. The author is interested in what he regards as a major threat to our present system: growing insecurity. From a dynamic sociological viewpoint he discusses how such insecurity arose and how it may be overcome.

The first section of the book is an extremely interesting comment on the social and political philosophers in the light of modern psychology. Alexander puts a necessary counterweight to some of the recent thinking about man. We used to think of man as a hero, and now tend to regard him as a complete villain. As Alexander says, "That he is both at the same time is a fact that awaits popular recognition (p. 114). . . . Their (the modern critics of history) acquaintance with the unconscious asocial nucleus in man makes them see only the repressed hidden forces and forget the dynamically effective social attitudes (p. 119)." Incidentally, the author's remarks about Pareto are a good antidote to some of the thinking that has been done about this sociologist.

A few slight errors have crept into this section of the book. For instance, Karl Marx and the *Reinische Zeitung* were not in Frankfurt in 1842, but in Cologne. The author appears to have forgotten Article XVI in the League of Nations Covenant when he states that the League failed to recognize that it must rely at first on the use of armed force. However, these are minor points and they do not alter Alexander's major thesis.

In the third and last section of the book the author brings to bear the insights and viewpoints set forth in the first two sections. Here he discusses the making of a dynamic sociology, totalitarianism, democracy and world order. Alexander tries to steer a middle-of-the-road course between the older Freudian weighting on biology and the recent emphasis on culture. For this reason the author will receive criticism from both the *echt* Freudians as well as the culturists. Some criticism from both camps may perhaps be well justified. For it appears to this reviewer that Alexander has steered too much to the middle, rather than veered on certain points in one direction where it seemed justified. The truth may well be in the middle, but it may be a middle composed of an average of all the points discussed. In any case this reviewer, with his admitted cultural biases, will discuss those points where he feels Alexander has steered his course unnecessarily far away from

the shoals of culture. Such discussion will center around three points: (1) some misconceptions of primitive cultures; (2) ethnocentrism; (3) biological versus ethnological bias.

In regard to the first point, the author does not fully appreciate some of the characteristics of primitive cultures. For example, he feels that research on social change would not be fruitful among non-literate societies because they are stable and unchanging. As a matter of fact, they are changing quite rapidly under the impetus of our Euro-American culture which is spreading to the four corners of the globe. Therefore studies of non-literate peoples can and do throw light on the nature of social process. Some very important studies have been made in this field during the last fifteen years. In addition the author falls into the old evolutionary idea of set stages through which all cultures are supposed to pass. Thus he indicates the old notion of a period of promiscuity and violence until the sons renounce their revolt against the fathers, and then the birth of the clan with the institution of marital tabus. Actually Alexander did not need this material to prove the point he was making, that is, "The next step toward world peace appears to involve the abandonment of nationalism and the cultivation of a broader humanitarian sentiment" (p. 332). In any case the quest for such ultimate origins of culture in the dim past are futile and are not necessary to the understanding of culture process.

Secondly, Alexander sometimes slips into ethnocentric evaluations which, it must be admitted, are difficult for any one to avoid. For instance, he speaks in general terms of the "progressive impulses" as "those that spur an individual to take chances and prefer the expression of their own individuality to a passive security" (p. 257), as if this were a universal criterion. There are cultures in which such is not an ideal as it is in ours. A good example is the Pueblo Indian culture where conformity is so important. Again, Alexander speaks of an "adolescent" level of competition or of politically "immature" nations, as if there were objective standards by which adolescence or maturity could be measured outside of the norms set by different cultures. These are evaluative terms for which we have no objective criteria. Even in our own culture it is dangerous to call competition "adolescent" when it is so much a part of our ideals and drives. Certainly to a psychiatrist, who sees the breakdown of individuals under the force of such drives, it must look adolescent—and is adolescent in the light of what human personality could develop under other cultural motivations.

The third point of criticism concerns the question of ethnological and biological bias. Alexander has a good deal to say about the "Neo-Freudians", as he calls those of us who are attempting to apply either psychoanalytic principles to culture, or cultural material to psychoanalysis. Alexander believes, however, that we have too strong an ethnological bias, even though he

admits that we tend in the right direction by emphasizing the hitherto neglected field of culture as over against biology. It is true that some of us may have been too biased in favor of cultural influences, and to this extent the author performs a useful service. The present reviewer believes that Alexander may have retained too much "biological bias" in his attempt to counterbalance the Neo-Freudian stress on culture. Of course, the problem is complicated by the fact that we do not yet know the psychobiological maturation stages in children apart from specific cultural influences. Just as in psychosomatic problems we are not always certain as yet which is the cart and which is the horse.

Dr. Alexander takes the viewpoint that the psychiatrist must deal with highly personal reactions of patients and not with cultural configurations. This is quite true. But such a viewpoint covers up certain important points. First of all, many of these highly personal factors are the same or similar in many people in the same social group. These the social scientist would say were "cultural" in nature. All the social scientist means is that these highly personal characteristics are shared by the people of the same social group. This does not deny their highly personal character, nor does it deny the fact that in individual analyses they have to be treated as personal factors and not as cultural. Alexander does list certain cultural features shared by Americans: "...claim of political freedom, religious tolerance, competitiveness in economic life, the ideal of success achieved by personal accomplishment and initiative, and finally guilt about extra-marital sexual gratification and jealousy" (p. 131). Undoubtedly the author has found represented in his patients reverberations from these attitudes expressed in highly personal fashion. None of these reverberations will be exactly the same in any two individuals, but there will often be a nucleus that is. The same process is apparent in the meaning of words in a language. Each word has a nuclear meaning possessed by practically everyone. At the same time there are peripheral meanings that are highly individual. For instance, every one who speaks English knows what "dog" stands for. But the overtone of meaning, the attitudes aroused, and the specific mental pictures elicited by the word "dog" would be different for every individual. However, the word has a central meaning caught by every one. Although Alexander would undoubtedly agree to this, in the book he appears to overemphasize the difficulties.

Alexander says that it is false to believe that an appreciation of cultural factors will greatly increase therapeutic acumen (p. 241). Technically and strictly this feeling may possibly be justified for patients from the same cultural stratum as the psychiatrist, but even here there is question of its validity. It may well be that analysts, like Alexander, who have been participants in two cultures, a European and an American, may take cultural accommodation for granted, and therefore overlook the adjustments they make to patients. Certainly in cases where the analyst and patient have different social backgrounds some cultural factors would have to be taken into consideration. For instance, a knowledge of what the Negro is up against and to

what he must adjust as a reality situation would have to be considered in the analysis of a Negro. Some of the Negro's peculiar conditioning would have to be judged and handled in terms of his cultural situation. For example, a white woman analyst would have to cope in a Southern-born Negro man with the engendered attitudes toward white women. Correct handling of the transference situation would inevitably involve a correct understanding of the attitudes which are different from that of a white American. In fact, this particular situation of white woman psychiatrist and Southern-born Negro would probably be so impossible from the cultural angle that in most cases an analysis with this particular relationship would not even be attempted.

Psychiatrists belong to and have been raised in a particular cultural milieu. They, like other people in our society, come from different regions in our country and Europe. They are identified with different class levels in our society. Our culture is in a period of rapid change. Such factors are bound to affect the psychiatrists' value systems and outlook on life. As individuals, psychiatrists have made their own personal adjustments to these factors. Their patients often belong to different sectors of our society and have different life values taken from their particular milieu. In this sense their adjustments will be different from any possible or congenial to the psychiatrist, or vice versa. In spite of the fact that the analyst is supposed to be a blank, but somehow permissive, screen to his patients, actually the personal cultural values of the analyst creep in.

Let us take the question of what psychiatrists believe should be the attitude of an analyzed person toward his cultural environment. One analyst may believe that the purpose of analysis is to make the patient revolt against his culture. Another may believe that treatment should adjust the patient to the culture as it exists. Still another thinks that analysis should leave the patient free to choose his adjustments from the surrounding culture, much as a customer is able to pick articles from the shelves in a cash-and-carry store. In order to buy certain articles there may be others that will have to be taken as well. The customer should be in a position to accept these unwanted articles, but perhaps under protest. Some think that as long as he is able to protest he is healthy.

These are not idle examples, but representative viewpoints expressed by psychiatrists. They involve value judgments and concern culture. The reviewer is not concerned here as to whether these judgments are right or wrong. He believes that Alexander would agree that it is nonsense to say that during the course of prolonged treatment the patient does not become aware of these values in the psychiatrist and react to them. If such factors are not ignored but recognized and used, therapeutic treatment can become more effective. It is time that psychiatrists faced the problem squarely. In this sense, then, therapeutic acumen *can* be increased by appreciation of cultural factors.

In another place Alexander states: "The new and correct emphasis upon cultural factors in the develop-

ment of personality should not blind us to the fact that the primary business of the youthful ego is a continuous adjustment to successive biological changes" (p. 233). Although this is quite correct, the author does not go on to emphasize that the important problem is the varying ways in which these biological changes are used by different societies to train children in conformity with a particular cultural system. The reviewer knows that Alexander is fully aware of this problem but believes he should have given it more stress in the book. The reviewer does not believe any one denies the existence of universally human psychobiological maturation changes, even if none of us are absolutely clear as to what they actually are. The reason we are not clear is that cultures make varying use of these stages, playing up certain factors and playing down others.

The author does not seem to realize the crucial importance of child training not only in making the child into a social being, but also in making him into a special kind of human being—an American, a German, a Zuni Indian. For instance, in section II the author makes the statement that, "I have little doubt . . . that the emotional development of a Hindu and an American child follows the same basic pattern, and maturation without a progressive trend is inconceivable" (p. 206). With the studies of child training in different cultures that are beginning to appear, such a statement about the emotional development of the child following the same basic pattern, regardless of culture, seems to have a very limited meaning if it is to remain true. The author gives as example one of the most unmistakable progressive stages in psychobiological maturation, the appearance of mature genital sexuality. He totally disregards the fact that mature genital sexuality has an entirely different meaning for the Hindu adolescent than it does for an American. It has an entirely different place in the life of one as contrasted with the other. Even the attitudes toward the emotional patterning of sexual activity differ profoundly for Hindu and American. Emotional development and its patterning vary greatly from culture to culture. This seems to the reviewer as significant a fact as the existence of a universal pattern. Again, this discussion brings out our need to know what these basic and universal maturation stages actually are, irrespective of culture influence.

In several places he speaks of education and educators for a mature personality. Institutionalized education is too late in the child's development to make the changes Alexander is talking about. We would need a new cultural form of child training. This would give new content, if you will, to conscience. Again, what produces a socialized being is the modification of the growing child as he passes through different maturation stages. Without it society would be impossible. The cultural use of these maturation stages was probably one of the greatest single "inventions" of man in his long history, and would rank with the creation of language and tools, the discovery of domestication of plants and animals or the application of science to technology. The varying uses to which the psychobiological maturation stages are put by

different cultures produce the different character structures found in various societies. The reviewer does not deny the existence of hereditary constitutional factors that produce differences in what used to be called "temperament." Alexander appears to stress these hereditary constitutional factors at the expense of character structure. It is the former that make an anthropologist like Linton, whom Alexander quotes on the point, feel that psychological types exist apart from culture. The reviewer believes all anthropologists have had this feeling of *deja vu* about certain individuals when working among a people totally different from our own. However, the reviewer does not believe that the existence of these hereditary constitutional factors mitigates the importance of the fact that individuals are deeply modified for their functioning in a particular society.

Alexander states that one of the most characteristic features of our culture lies in its great emphasis on the individual. It certainly is an important part of our ideological system. But it should be also pointed out that the individual is severely trained in this society so that his impulse life is greatly conditioned. Then at the point when he cannot really be an individual, we offer him the opportunity. These balances in a culture must be studied for a clear and accurate picture.

Alexander explains social cohesion on the basis of mutual dependence of the members of a society, and their reliance on a leader, both strengthened at times when the society is threatened as in times of war, and weakened in times of plenty and of security. These explanations are all good and fundamentally correct. However, they are, in a sense, superficial. They serve to reenforce social cohesion, but do not create it. Alexander is talking mainly about forces operating on the adults in the culture, while the foundation for social cohesion is laid in the training of the child at an early age. It is true that Alexander in the beginning of the chapter does mention child training as fundamental, but such perspective gets lost in the later discussion.

There is a fundamental correctness in the statement that, "In a parallelogram of forces, individualistic tendencies oppose social cohesion" (p. 257). But the author fails to point out that a culture is successful to the extent to which the individuals are able to identify their interests with the goals set by the culture. Thus there is more to the problem than a rational balancing of what people get out of a given cultural situation as is implied in such a statement as: "The underprivileged accept their lot because—or when—the social system guarantees them some security and satisfies their dependent needs" (p. 249). If a culture is able to get such people identified with their lot in life, or the religion offers them a better condition in the future life, they may not put up a fuss even though they are insecure and their dependency needs are not entirely satisfied.

These examples given are ones chosen from others that could have been used to bring out what the reviewer feels to be the author's failing to point out the exact place of culture in the conditioning of the biological organism of man. In his attempt to steer a sane

course between the extreme viewpoints expressed by *echt* Freudians and enthusiastic culturalists Alexander in the book does not do himself justice as to his real understanding of cultural process. Also, with the fund of experience as psychiatrist at his command, he rightly sees the tremendous differences in individuals. Part of these differences are owing to our heterogeneous and rapidly changing civilization; part of the differences may be ascribed to differences that show up among individuals in any culture, what with varying constitutional factors and with different life experiences. The sense of individual differences unfortunately leads Alexander to overestimate the difficulties of isolating common factors among individuals in a particular society. Thus he doubts the value of Kardiner's construct "basic personality" for our society, unless it is modified. The reviewer realizes the complexity of the problem, but believes it could be solved by classification of individuals by region and social class, for instance. Then the search would be for not one, but several "basic personalities." Even in homogeneous societies differences will occur among individuals, but the concept, basic personality, is a working *construct* and not an actuality.

Dr. Alexander's book is very thought provoking and extremely useful. Although the principles of surplus and inertia are very useful for viewpoint and insight, they cannot be regarded as operational tools for detailed analysis of cultural data from a psychodynamic standpoint. The reviewer does not believe that Alexander intended them to be. He, for one, hopes that Alexander, with his rich analytic experiences and his perceptive depth into individual dynamic psychology, will turn his mind next to the construction of such operational concepts. The social sciences need desperately a dynamic psychology. We have the dynamic psychology in our grasp, but it needs a keen cutting edge for use with cultural and social material.

Scudder Mekeel.

PART TWO: THE FUNDAMENTALS OF HUMAN BEHAVIOR

This book is a psychoanalyst's challenging contribution to the quest for a rational world order. It is divided into three parts. The first is an historical survey of political theory from the psychological point of view; the second, an exposition of the findings of psychoanalysis in a new theoretical frame; and the third, an application of the dynamic principles here evolved to the great political problems of our time.

The second—and basic—part of the book, "The Fundamentals of Human Behavior," may be read as a discourse by itself; in the present review, only this part will be discussed.

In chapter one, "Adaptive Behavior," Alexander defines personality or Ego as the "psychological counterpart of the central nervous system." This Ego "fulfills two basic functions: (1) it determines consciously by trial and error suitable means for gratifying its subjective needs; and (2) it repeats this behavior until it becomes automatic" (p. 144). These functions are the instruments of "adaptation," i.e., of "learning and habit formation."

Though changing conditions demand readjustment, the Ego, nonetheless, clings to its old habits; i.e., its second function (automatization) tends to interfere with the first (fresh trials). The reason is, says Alexander, that the organism is "disposed to save its energy on the principle of economy." This "energy-saving principle" or "inertia" is "one of the fundamental characteristics of living organisms and . . . the key to understanding all morbid phenomena . . ." "The application of this basic law of life to society is the main topic of this book" (p. 145).

This is Alexander's first dynamic principle. Inertia, in the oriental sense of "indisposition to activity," has been embodied repeatedly into fundamental psychological and physiological principles. It is the underlying idea of Claude Bernard's "constancy of the internal environment" (1859), of G. T. Fechner's "tendency towards stability" (1873), of S. Ferenczi's "tendency towards inertia and regression" (1913), of Freud's "constancy principle" (1915), "repetition compulsion" and "death instinct" (1920), "nirvana principle" (1924), and of Walter B. Cannon's "homeostasis" (1926). Alexander derives his interpretation of inertia from physiology and economics, by first equating "activity" with "energy expenditure," and then reformulating "indisposition to energy expenditure" into "(economic) disposition to energy saving." His new concept is well defined, strictly materialistic, and most significantly represents a "minimum principle." It would have delighted Ernst Mach,* and harmonizes with the present trend in theoretical physics.†

In flexibility of behavior man ranks high above the other animals. Taking his clues from comparative brain anatomy and animal experiments, Alexander attributes this evolutionary advance to man's superior comprehension of the environment. The shortcoming of this explanation is due to Alexander's failure to utilize his own inertia principle. He overlooks the part played by man's foresight and judgment: man learned to understand painful effort as a means to pleasurable ends, and wrested from himself new forms of behavior that saved him pain and energy in the long run. On this level of adaptation, depicted by Freud as the "rule of the reality principle," one may speak of "enlightened inertia."

The growth of the human infant to maturity and in-

* "Science itself, therefore, may be regarded as a minimum problem, consisting of the completest possible presentment of facts with the least possible expenditure of thought." Ernst Mach, "Science of Mechanics," 1883; Second English Edition, p. 490.

† "By a succession of discoveries it was shown that all the happenings of nature can be predicted by means of minimum-principles: the climax was reached in 1915, when Hilbert showed that all physical events (gravitational, electrical, etc.) in the universe are determined by a "world-function" which is such that its integral taken over the whole of space-time is a minimum." E. T. Whittaker, "Aristotle, Newton, Einstein," *Science*, Vol 98, p. 254, 1943.

dependence is described as the unending task of learning and unlearning. Memory, interpreted as a manifestation of inertia, makes learning possible, and unlearning difficult. This adaptive machinery is kept going by "dynamic urges and needs within the organism, which motivate behavior" (p. 147).

The person, continues Alexander, not only resists changes requiring greater expenditure of energy; he may also revert to earlier forms of behavior, when new adjustments fail. With the discovery of these phenomena—fixation and regression—Freud laid the "cornerstones of psychopathology." Regressive behavior, explored by psychoanalysis on so large a scale, is seen as the most striking clinical expression of the energy saving principle. The reappearance of these same regressive forces on the social scene as "cultural lag" is Alexander's principle object of study in the sociological part of the book.

The significance in human life of the regressive trend is brought home to the lay reader in chapters two, "Compendium of Psychopathology," and three, "Regressive Trends in Everyday Life—Sleeping and Dreaming—Folklore"; the former, illustrates the morbid, the latter, the recreative aspects of regression. The treatment of these over-popularized, but still not fully understood topics bears the mark of the experienced investigator and clinician. Improvements over the conventional ways of presentation appear on almost every page. Though the particulars are mostly suppressed to bring the essential dynamics into sharp relief, there is, nonetheless, a good deal of interest to the technical reader as well.

In the third and fourth chapters, "The Role of Sexuality" and "The Progressive Forces of Life," Alexander sets forth his second dynamic concept—the "principle of surplus energy."

This principle, too, is drawn from physiology and economics:

From the point of view of economic operation, each type of organism—like each kind of factory—has an optimum size, approximated by the extant forms. But, each organism is endowed with energy over and above the demands of its size. This energy supply, in excess of the organism's utility requirements, cannot be expended in the pursuits of self-preservation: it represents the organism's surplus energy.

In Alexander's view surplus energy explains the basic biological facts of growth, cell division and sexual reproduction. It also manifests itself in the phenomena of pregenital sex, love and cultural work. The latter is considered a direct expression of surplus energy, rather than sublimated sex.

So far as growth, procreation and cultural creation are concerned, this interpretation is self-evident. But it requires an auxiliary hypothesis to bring the pregenital eroticisms under the surplus concept. Alexander suggests, as did Ferenczi before him, that these eroticisms derive from surplus excitations, generated, but not absorbed by utility function. David M. Levy's observations on "sucking-time deficiency" seem to bear out this point.

In applying the principle to the life cycle, Alexander

points out that the child has little surplus energy; and this little surplus is discharged in eroticisms and play. Hence, the child's attitude toward the world is "taking." Maturation is a spectacular rise in surplus energy. This overflow brings into play reproductive, parental and productive strivings, and finds its expression in the adult's "urge to give."

From these manifestations Alexander concludes that surplus energy is a progressive force in life; its forward push opposes inertia's backward pull. Without recognizing both these antagonistic forces, it is impossible, he states, to achieve a balanced picture of life. In Alfred Adler's theory, the "will to power," life is only progression; in Max Nordau's embittered philosophy, nothing but regression.

I should like to add, that in classical psychoanalysis the latter view prevailed. Ferenczi, influenced by Schopenhauer, considered regression the sole intrinsic motive force of life, and, in a biological speculation of unrivaled originality and brilliance, consistently reduced sex to a "regressive pull toward the ocean."* Freud—fascinated by the ideas of Ferenczi and reluctant to acknowledge the claims of Adler—assigned to his "Eros" predominantly repetitive and regressive characteristics, and was also tempted to view all evolutionary progress as an externally induced "detour to death." Historically, Alexander's position is the reconciliation of the extreme and opposite views of Ferenczi and Adler—a reconciliation Freud was not quite ready to make.

The last chapter is a "Summary of the Basic Dynamic Trends in Human Nature." Its concluding passage reads:

"This view is a reinterpretation of the same facts accounted for by Freud in his theory of a life and death instinct. The view proposed here is admittedly most descriptive and has less metaphysical depth. The *energy-saving principle* accounts for adaptive behavior and regression and the *principle of surplus energy* for all progressive trends, such as the spontaneous and pleasurable exercise of faculties as well as all creative functions—sexual and social. The advantage of our formulation lies in its strict correlation with the biological process. It is not offered as a new system, but as a useful lead in the confusing labyrinth of organic and emotional life. It does not operate with abstract metaphysical drives but with empirically derived dynamic principles: the principles of economy and of surplus energy." (p. 210-211).

This statement of Alexander's invites an examination of psychodynamics.

In my opinion, this science is an unique branch of human biology, and has two specific objectives: (1) to describe those forces of the organism which are accessible to investigation by psychological methods; and (2) to describe the mechanisms by which these forces, the motive forces of behavior, operate. In his early studies and theories Freud accomplished these very objectives. Concerned with the causation and treat-

* S. Ferenczi: "Thalassa, a Theory of Genitality."

ment of hysterical symptoms, he described the motive forces in such clinical (phenomenological) terms as affects, wishes, obligations; and he discovered the mechanism at work: an hysterical symptom is the vicarious discharge of a "hemmed-in" affect, he stated, for it disappears if the affect is released.

The theoretical difficulties began when Freud proceeded to *interpret* the motive forces of behavior as expressions of instincts. He defined "instinct" (*Trieb*) as a "borderline concept between the psychic and the somatic," representing "the stimuli that penetrate from within the organism into the mind," hence "the measure of the demands made by the organism upon the energy of the mind" (1915).^{*} The accent fell on the "sexual" instincts, comprising multilocular pleasure-seeking drives, self-love, love and reproduction; however, instincts of self-preservation also were postulated.

This "libido theory" of motivation soon was to undergo profound changes. In "Beyond the Pleasure Principle" (1920) Freud re-defined "instinct" as "a tendency innate in living organic matter impelling it towards the reinstatement of an earlier condition, one which it had to abandon under the influence of external disturbing forces—a kind of organic elasticity, or, to put it another way, the manifestation of inertia in organic life."[†] He now envisaged two fundamental instincts: Eros, the creative life instinct, engaged in a "titanic struggle" with the destructive death instinct; the struggle taking place in every living cell, in the amoeba as well as in the individual cell components of the metazoa. The instincts within the area of clinical observation, i.e., the motive forces of behavior, were considered fusions, in varying proportions, of these two.

This was Freud's final "theory of instincts"; disarmingly, he referred to it as "our mythology."[‡] This theory is one of the great philosophical achievements of mankind; by creating new symbols for the struggle between Ormazd and Ahriman, good and evil, light and darkness, love and hate, attraction and repulsion, it perpetuates our noblest cultural heritage. But it is obviously too remote to guide experimental and clinical inquiry.

Fortunately, psychodynamics has great empirical origins; starting again from Freud's early theoretical structure, it can build a new frame of reference suited to its methods and tasks. In search of this frame, the present reviewer suggested the interpretation of motive forces of behavior with reference to the integrative machinery of the organism (1939); Thomas M. French advanced similar ideas; A. Kardiner and others tried a system of interpretation stressing the adaptive-social aspects of behavior. Description of the clinical findings of psychoanalysis in the new theoretical frame is, of course, the acid test of these proposals.

Alexander sought a new all-embracing biodynamic conception and kept his eye on the two neighboring

sciences closest to human behavior: physiology and economics. As a result, in his new theory there emerges an intuitive anticipation of those fundamental *engineering principles* that possibly govern the functional and structural design of living organisms. In future formulations he may find it desirable to sharpen the logical distinction between the general principles of design, on the one hand, and the particular forces and formations of the organisms, on the other.

Alexander's theory is simple and ingenious; it cannot fail to impress anyone interested in the conceptual development and structure of science. It must be made clear, however, that concepts of this degree of generality are not meant to explain or explore special problems. Empirical inquiry proceeds the other way around, from the particular to the general. The role of valid basic principles is to simplify theory—or as Mach put it, to improve the economy of scientific thought. Alexander's propositions pursue this very goal. The fact that they are capable of validation by controlled observation and experiment, makes them a challenge and promise to psychodynamics.

Sandor Rado.

BATESON, GREGORY AND MEAD, MARGARET: *Balinese Character; A Photographic Analysis*. New York, New York Academy of Sciences, Vol. II, 1942, 277 pp.

In this most attractive volume, a special publication of the New York Academy of Sciences, Gregory Bateson and Margaret Mead present the synthesis of their field studies in Bali which extended over more than two years, from March 1936 to March 1938, with an additional study of six weeks in 1939. In the introduction they call the technique of presentation used in this monograph an "experimental innovation." The authors use two juxtaposed methods to describe and interpret Balinese character as it develops under the influence of the cultural milieu. Margaret Mead has written an introductory description of the Balinese character which is followed by 100 plates of excellent photographs. On each page a series of photographs illustrating the same theme faces explanatory notes by Gregory Bateson on page opposite. Those readers who saw the authors' fascinating moving pictures on Bali cannot help feeling that still photographs, no matter how carefully selected and cleverly grouped, are not always a good substitute for the cinematographic effect. Moreover, the plates are not equally successful in illustrating the authors' constructions and abstractions. Some of them are most impressive, for example, the four plates dealing with sibling rivalry (Plates 69 through 72, and Plate 75, called Infancy and Unresponsiveness). These plates justify the authors' claim that they are offering a veritable new method of presenting ethnological material. In general, the photographic series dealing with interpersonal relationships are more successful and instructive than those showing the more formal ceremonials, which are less dynamic and interpretative. These latter—photographs and explanatory text—are merely descriptive

^{*} Freud, "Collected Papers," Vol. IV, p. 64.

[†] Freud, "Beyond the Pleasure Principle," p. 44.

[‡] Freud, "New Introductory Lectures on Psychoanalysis," p. 131.

and not different fundamentally from book illustrations found in conventional anthropological works.

The aim of the authors is to convey to the reader what they call the ethos of a culture: "a culturally standardized system of organization of the instincts and emotions of individuals." In her chapter on Balinese Character, Margaret Mead attempts to give a condensed description of the standardized personality structure of the Balinese as it develops under parental influence. The observational material collected and documented in this chapter is exceptionally rich; its condensation, however, does not produce a fully integrated picture. Possibly Margaret Mead took too seriously previous criticisms of her lively descriptions of different cultures as being too journalistic. This time she seems to lean over backward and refrain from far-reaching constructions. Consequently, this chapter shows a somewhat chopped up quality. Fortunately her descriptions often speak for themselves and the different themes treated in this chapter, such as spatial orientation, levels, learning, attitudes of the body, play activities, child-parent and sibling relationships, do convey certain basic features of the national ethos of Bali. There is, however, no whole hearted effort to reassemble this host of pertinent observations into a meaningful whole, and the last section of this chapter, "Conclusion"—less than a page in length—does not do justice to the fascinating and abundant material presented on the preceding 46 pages. The author is contented to give an impressive portrait of the Balinese character without a thorough presentation of the psychodynamic inter-relationships within the personality structure. It is not the reviewer's task to attempt such an integration of material; only the authors could do this in a valid way. What transpires most clearly is that the Balinese child is born into a fixed, stable caste system in which all of its behavior, feelings, social and play activities, are pre-ordained from the first to the last day of life. Parental attitudes, all the details of child rearing, are consistently directed toward developing a pliable human material in which all initiative is eradicated (or possibly relegated to certain circumscribed fields, such as artistic creation?). Automatic behavior in contrast to flexible ad hoc adaptations is more prevalent than in our culture. It is most impressively shown, both by the text and the plates, that the acceptance of such a rigidly prescribed behavior requires an emotional attitude which we could style as dullness. The authors are correct in stating the difficulty of commenting upon one culture in the language of another since the verbal expressions of one culture are not suited to describe the attitudes of another. The authors use such words as unresponsiveness, or "dreamy relaxed disassociation." Another possible expression which has been used by others for the Buddhist methods of emotional withdrawal (Jhana) would be indifference. Whichever term is used, however, dullness, indifference, withdrawal, detachment, disassociation, or unresponsiveness, the combination of photographic and verbal presentation gives a vivid and concrete idea of the different manifestations of this characteristic attitude towards the

world and other persons. (Somewhat related attitudes in other cultures are the ascetic *sancta indifferentia*, or that expressed by Seneca: "*Quid est beata vita? Securitas et perpetua tranquillitas.*")

The elaboration of this attitude is the central theme of the monograph. If there is such a thing as Kardiner's basic personality, the authors of this monograph certainly succeeded in drawing a realistic and convincing picture of it in the case of the Balinese. Among the various factors which contribute to the development of this basic character, the most powerful is the maternal attitude toward the child in the different phases of its development. During the first year of life the child is not only the center of maternal attention but is also the recipient of more sensual (pre-genital and genital stimulation) than is customary in western civilization. This happy period of childhood is officially terminated on the birthday, which occurs on the 210th day of life in Bali, although usually it lasts somewhat longer. In the second phase of life, the maternal stimulation becomes a consistent tantalization and teasing, an almost calculated frustration of the baby. Maternal attention is turned away provocatively from the knee baby to the youngest. In the absence of a younger child, a borrowed baby may serve for this early emotional training. The child first reacts with temper tantrums but when the sequence of excitation followed by frustration reaches a certain limit, dullness sets in and the child goes through a period of sulking and then lapses more and more into withdrawal and indifference. This is a well known defense mechanism, defense against disappointment and frustration by withdrawal of emotions from the human environment to the self, both of aggression and love. One's own body (or self or both) becomes emotionally overcharged. A great number of the plates in this book as well as the text illustrate this pronounced autoeroticism of the Balinese. The strange ability of the Balinese to control different parts of the body independently, particularly certain groups of small muscles, requires a regression to the infantile phase which precedes full bodily coordination. The section on "Integration and Disintegration of the Body" with the corresponding plates is highly instructive for the understanding of the development of body control and throws light upon certain aspects of the symptomatology of schizophrenia.

We have every reason to assume that in the development of body control the child at first uses his extremities, all his muscles, in a playful, uncoordinated, non-utilitarian way. It can also be assumed that these playful activities are connected with considerable pleasureable sensations. Gradually from this chaotic uncoordinated repertoire of independent muscle innervations certain coordinated group innervations develop, involved in such complex utilitarian functions as focusing of the eyes on an object, then approaching it and finally grabbing it. With the progress of these coordinated utilitarian motor functions we lose the faculty of the independent innervation of separate muscles or muscle groups. The best example is the difficulty of independently moving one's fingers or toes in certain directions; only the utilitarian group

innervations involved in grabbing, walking, and other functions survive. The regressive return to independent innervations of early childhood is probably the clue to the understanding of certain catatonic postural phenomena. The secret of the appeal of the Balinese dancers upon the onlookers may lie in the fact that it revives through empathy the pleasurable sensations of that early period of life in which the human being still could indulge in the playful exercise of its muscles independent of the practical needs of survival.

An interesting counterpart of the lack of emotionalism in interpersonal relations is the free, even exaggerated expression of emotions in rituals, particularly in the dynamic theatrical dance performances. The authors are well aware of the vicarious role of these performances which give opportunity for emotional abreaction. The interpretation of the traditional figures in these ritualistic dances—the witch representing the tantalizing mother, the dragon symbolizing the jovial, clumsy but benign father—is most convincing, and the authors recognize their significance for emotional discharge. Those emotions which have been inhibited during the emotional frustrations of childhood are expressed on the stage.

The description of the feeding and eating habits is of particular interest. The authors postulate an emotional difference between eating and drinking, in that only drinking is casual and connected with pleasure. This differentiation can be traced back to early feeding habits. The infant is both suckled and fed by pre-chewed solid food from birth on. This pre-chewed mixture of rice and banana is more or less forced into the infant's mouth "who splutters and chokes and almost always is resistant to the mountain of mush which is being forced on it." At the very beginning of life one of the most natural and pleasurable physiological functions, eating, is thus robbed of its spontaneity and is forced upon the child. Regimentation starts at the very beginning of life.

The significance of spatial orientation is impressively portrayed, particularly the significance of levels (upper and lower) in its relation to the hierarchical social system. In striking contrast to the social mobility of our civilization, in the Balinese society everyone's place is strictly determined. The Balinese fear of the uncertain, of disorientation, is plausibly presented as connected with this feature of the culture.

There is a great wealth of other detailed, pertinent observations for which the original text should be consulted. The description of trance conditions is of great interest to the psychiatrist. In the interpretation of most of these details sound psychodynamic principles are applied. Sometimes the psychodynamic reconstructions are obviously incomplete. The excellent series of plates on sibling rivalry show how the older knee baby is exposed to the nursing of the younger rival, becomes frustrated and then led to assume a protective role towards the new baby by "putting the new baby in the knee baby's lap, and urging the latter to treat the rival as younger sibling." The pictures bring out beautifully the ambivalence of the knee baby, but the positive interest of the older sibling in the

younger, obvious in Plate 71, is left unexplained. It is clear that identification with the younger child, resulting in vicarious gratification, is the psychodynamic basis of the positive aspect of this ambivalence. The same mechanism is probably at play in the socially important role of the pre-adolescent girl, whose main function is that of an auxiliary nurse. However, the discussion of Plate 79 (Child Nurse) is unclear. As I understand it, the authors contrast the Balinese small girl's attitude with the western attitude and postulate that the western girl's mothering attitude is based on a super-ego reaction. They overlook the powerful factor of identification with the younger child, which seems to be present in both cultures and is probably universal.

There are other instances where the psychoanalytically trained reader's need for psychological explanation remains unsatisfied. In Plates 76, 77, and 78, the emotional content of the small girl's play with the puppy is not clear. The authors do not attempt to interpret this in psychodynamic terms and satisfy themselves mainly with description.

As a whole, however, the influence of parental attitudes upon character formation is convincingly elaborated. One of the greatest methodological assets of these field studies is that the observations were made in the natural setting of every day life. The conclusions, therefore, are more valid than those drawn from pseudo-exact experimental studies which, in artificial settings, try to isolate the influence of certain parental attitudes upon behavior patterns. Although the authors cannot always evaluate psychodynamically what they have observed, their observations have a reference to the totality of the situation. These studies should have great educational value both for experimental psychologists and psychiatrists who are inclined to focus their attention on artificially isolated sectors of interpersonal relationships. From the point of view of field theory it would have been even more desirable if the parental attitudes themselves had been brought into correlation with the whole social structure (including, of course, the politico-economic structure). The authors took their departure from the parental attitudes but did not explain these attitudes systematically as derived from the total social pattern. In fact, the socio-dynamic interpretation of the cultural system itself is not included in the monograph; ethos and social structure are correlated only in a few instances. The chapter, "Ethnographic Note on Bali", is very sketchy and contributes little to the better understanding of how parental attitudes are determined by the social pattern. We learn little more than the names of three casts, almost nothing about their social functions and political and economic interrelationships. The political and economical organization of Bali can be visualized only vaguely from this brief chapter at the end of the book. The authors modestly call it an "Ethnographic Note." It is apparent that they purposely omitted to correlate the ethos of the Balinese culture with its political and economic organization. The reader may make such correlations himself but is assisted very little by the

authors. Lack of social change, lack of social mobility, a traditionally fixed system of economic and social functions with its timeless institutions are all consistent with the parental attitudes and through them with the personality structure characteristic of the members of such a society. But such correlations, as the reader himself can make, are too general. In particular the relationship of the ideological to the basic politico-economic structure is not worked out consistently. The socio-economic structure determines parental attitudes and these in turn determine character formation. This monograph whets the appetite for a treatise in which the parental attitudes themselves are understood from the cultural configuration. Abram Kardiner's book on "The Individual and his Society" is such an attempt. Kardiner, however, has to content himself with second hand material, which is not always gathered by psychodynamically trained observers. This monograph contains a wealth of pertinent material concerning behavior and interpersonal relationships, which the authors do not consistently explain from the total cultural configuration. It is to be hoped that they will write a second volume. Until then we must be content to understand the "Balinese Character" as a result of parental attitudes, which must remain suspended in a cultural vacuum or at best in an extremely rarified atmosphere. In spite of this omission the book has an unusual value for the student of normal and abnormal psychology, and makes one of the most stimulating and enjoyable readings of current scientific literature. This enjoyment is scarcely disturbed by the neologism "sociotic" (Page 33), a word for which the reviewer consulted in vain the most authentic British and American dictionaries.

FRANZ ALEXANDER

Psychology for the Fighting Man. Committee of the National Research Council and Science Service. Washington & New York, Infantry Journal and Penguin Books, 1943, 456 pp.

The contents of "Psychology for the Fighting Man" was organized for reading by the fighting man himself. It is essentially a popularly written, scientifically accurate, account of the situations and problems to which the soldier must adjust.

An imposing list of 60 scientists collaborated in the publication of the text under the direction of a committee of the National Research Council. The task confronting E. G. Boring, the editor, was that of rewriting the technical information in a style that could be understood by anyone with ordinary reading ability and no previous knowledge of psychology; this he did admirably.

The material on the social processes has a tendency to be a little farther removed from reality than is satisfactory in view of the very real and demanding problems facing the soldier. Contributing to this abstract approach is of course the restricted nature of specific military information. The authors obviously tried to treat such topics as morale and sex adjustment without any attitude of patting the men on the back or the use of platitudes. Similarly the discussion on the

qualities of leadership in no sense attempts to rationalize the personnel methods of the Army or Navy.

The apparent interest that has been aroused by the publication of this text is evidence for the need of such a work, and leads one to anticipate the more collegiate textbook on military psychology promised by the subcommittee of the National Research Council.

JAMES E. BIRREN

BOSSARD, J. H. S. AND BOLL, E. S.: *Family Situations*. Philadelphia, University of Pennsylvania Press, 1943, 242 pp.

"Let the biologists, psychologists, psychiatrists and psychoanalysts study the individual's behavior: it is the sociologist who studies the social situations to which individuals react." With full awareness of the considerable overlapping in the area of function of these and other social sciences, the authors thus delimit their field and define their responsibility.

The major emphasis of this study is on one particular "social situation," the family, whose all-pervasive influence in shaping personality can hardly be overestimated. "Out of a vast amount of scientific data of recent years, two facts stand out in clear relief. One of these is that the foundations of human personality are laid down in early childhood; the second, that the chief mold of personality thus becomes the family. It is in family experience that we find the origin and fixation of the reactions of one individual to another." In successive chapters the authors consider in detail the specific influences of various aspects of intra-family relationships, family patterns and external factors: families with excessive or inconsistent affection; homes controlled by mothers; democratically managed homes; large families contrasted with small ones; nomadic families; homes at different income levels; city, small town and farm homes—these and many other categories are analyzed and case material presented, and the nature of the effect on children examined. The question which they are constantly posing and attempting to answer is: in what way are these several factors conducive to good or bad mental hygiene?

This reviewer is not familiar with other studies, by medical or non-medical writers, revealing so clear an insight into the multiplicity of forces playing on the child, and the inter-relationships of these many forces which must be evaluated in the proper study of the individual as a whole. All too often mere lip service is paid to the concept, "the total person," the worker's own orientation (analyst, teacher, social worker), narrowing the view so that a telescopic rather than a panoramic picture results.

The student of human behavior will find here not only a clear statement of much that has been less well written before, but also new and stimulating ideas.

J. LANDER

Injuries of the Skull, Brain and Spinal Cord: Neuro-Psychiatric, Surgical and Medico-Legal Aspects. 2nd ed. Edited by Samuel Brock. Baltimore, Williams & Wilkins Co., 1943, 616 pp.

This book is the second edition of a symposium by

twenty-three authorities from the United States, Canada, and Great Britain. This edition has had revision of about half of its chapters which makes for some unevenness, but no more than may usually be found in a collaborative medical effort.

The readers of PSYCHOSOMATIC MEDICINE will be particularly interested in the chapter by Schilder on "Neuroses Following Head and Brain Injuries." Herein Schilder has covered all the nuances of the psychology of the neuroses following head injuries. He has gone to considerable pains to dispel the notion that neurosis following on head injury is necessarily based upon anatomical consequences. It is certain that lesions in various parts of the brain may facilitate neurotic reactions. However, a considerable modification of the personality or pre-existing neurosis must occur after the trauma, before a diagnosis of post-traumatic neurosis is made. Whether or not such has occurred sometimes is impossible to judge, even after the evidence has been educed. In the final analysis it would appear of primary importance to refrain from the diagnosis of traumatic neurosis following head injury unless the head injury with its psychological consequences was an absolutely indispensable factor in the total development.

The psychotic states following head injury and simulation of injury which lend themselves to considerable controversy are thoroughly discussed by Bowman and Blau in the chapter entitled "Psychotic States Following Head and Brain Injury in Adults and Children," and by Keschnier on "Simulation (Malingering) in Relation to Injuries of the Skull, Brain and Spinal Cord." Most of us seem to agree that uncomplicated malingering is extremely rare and, when it occurs, is likely to be a psychopathological symptom.

This is by far the best reference in English on the subject. There is little pertaining to injury of the central nervous system and its coverings that is not discussed in an authoritative fashion.

CHARLES D. ARING

PUTNAM, TRACY: *Convulsive Seizures*. Philadelphia, J. B. Lippincott Co., 1943, 168 pp.

This clearly written and easily understood book should serve its purpose well. As an interesting review of basic facts it will also be useful to the practitioner who treats few convulsive disorders.

The author should be commended on his emphasizing the psychologic aspects of convulsive seizures. In speaking of a healthy mental attitude towards seizures he says: "Without it, the relief afforded by medical measures is of limited value." This applies to everyone—patients, relatives, and friends.

The chapter headings are: "Seizures and their Causes," "The Diagnosis of the Cause of Seizures," "What the Patient Can Do to Help," "How Bystanders Can Help," "Principles of the Treatment of Recurrent Seizures," "The Outlook for the Individual," "The Outlook for the Control of the Disorder," "About Medical Writings on the Subject," and "For Lawyers and Legislators Only." The chapter on treatment is presented well, but it might be better to leave the

matter of dosage entirely to the physician. The last two chapters should have been omitted entirely, since their subject matter is of little practical importance to the average reader.

ROLAND A. LESLIE

WHITE, JAMES C. AND SMITHWICK, REGINALD H.: *The Autonomic Nervous System*. 2nd ed. New York. Macmillan Co., 1942, 460 pp.

The autonomic nervous system remained a mystery from its first reference in the second century to the last quarter of the nineteenth century at which time the presence of two antagonistic systems of nerves were seriously considered. Later, the existence of distinct sympathetic and parasympathetic divisions became fact established, consequent to studies following upon the discovery of epinephrine in 1895. Since then long and progressive strides have been made in unfolding the mysteries of a once badly understood dual system of nerves with the result that the autonomic system is now recognized for the important part it plays in the function of the body.

In this monograph the authors, by pooling the wealth of their own personal experience and studies with that of others, present the latest knowledge pertaining to the autonomic nervous system. Their efforts are principally concentrated on accepted rather than highly controversial data and yet sound a note of encouragement on work still in the experimental stage.

The chapters on anatomy, general physiology, pharmacology and physiology of visceral pain, so necessary for the basic scientific and clinical understanding, are written in a simplified, interesting and constructive fashion. The therapeutic measures are stressed from a surgical viewpoint with special reference to sympathectomies and paravertebral injections. The surgical procedures are evaluated from actual clinical results obtained, the bad as well as the good being included. The authors have contributed an outstanding monograph which the internist, psychiatrist, neurologist and surgeon should be pleased to have in their possession for study and reference.

FRANCIS C. ANSANELLI

FREUD, ANNA AND BURLINGHAM, DOROTHY: *War and Children*. New York, Medical War Books, 1943, 191 pp.

Warmth, sincerity, the ability to see, comprehend and report in a scientific and deeply moving style make this book a masterpiece of psychoanalytic literature. It is written for the layman specialist and everyone who wishes to know the meaning of war. Essentially it is disturbing and confusing because it introduces the reader to a twofold unknown setting: the horrible reality of war and its effect on children. The basic thesis of the authors is a fundamental truth; the child's anxiety is the mother's anxiety, and emotional security enables the child to deal with almost any potentially traumatic situation. This thesis is dramatically illustrated in the case histories in the second half of the book.

MARTIN GROTHJAHN

EUGENE F. HAHN: *Stuttering. Significant Theories and Therapies.* Stanford University, California, Stanford University Press, 1943, 177 pp.

This short work, as its sub-title indicates, presents concepts related to the pathology and treatment of stuttering in the American and European literature. These concepts are presented under an alphabetical listing of the "Authorities" who have formulated them. All authorities, except for a very few, approved and edited the material relative to their own methods. In all cases the presentation is clear and adequate and can be considered an accurate condensation of the authors' works. Examination of the successive chapters reflects the confusion which prevails in the field of speech pathology, and this is at once a disturbing and informative index of the status of research in this field. In the introduction, the author attempts to explain the reasons for this confusion, and his critical analysis, though very brief, sums up pointedly the factors responsible for it.

It is regrettable that alphabetical listing of authors, rather than historical or systematic grouping of concepts, was selected for the presentation. The presentation is not as complete as would seem desirable to this reviewer, especially as regards the European literature. M. W. Sachs, H. Stern, Flatau, Jellinek, G. Seth, Matha, H. Kopp, among others, are omitted. H. Gutzmann is not represented (the editor's request does not seem to have reached him), in spite of the fact that his voluminous works are available in many libraries. W. Berger died two weeks before the compiler's communication could reach him in Germany, which excluded him automatically at the last hour.

It is difficult to ascertain by what criteria the eighteen American workers were selected in preference to S. T. Orton, for instance, whose name appears only in a brief bibliographical reference list. J. Eisenson and C. B. Stoddard are not mentioned.

It does not seem to this reviewer that a valuable contribution has been added to the field of research or therapy by a condensed presentation of works which are available in their original form to the serious-minded worker.

J. LOUISE DESPERT

BOOK NOTES

BEST, HARRY: *Deafness and the Deaf in the United States.* New York, the Macmillan Co., 1943, 675 pp.

Almost every fact relative to deafness and the deaf may be found in the large number of facts, statistics and seemingly endless references in this book. There is little material, however, which throws light on a better understanding of the deaf person and of his world.

GROTJAHN

GERSHENFELD, LOUIS: *Urine and Urinalysis.* Philadelphia, Lea & Febiger, 1943.

Urinalysis has become so common an office procedure that its importance is too frequently minimized. The value of this small volume lies in its re-emphasis of the role that an adequate analysis of the urine can play in clinical diagnosis. The subject is ably and completely covered and the importance of special tests is well defined.

MIRSKY

LICHENSTEIN, P. M. AND SMALL, S. M.: *A Handbook of Psychiatry.* New York, W. W. Norton Co., Inc., 1943, 330 pp.

In fourteen short and precise chapters an outline of psychiatry is given for persons seeking psychiatric orientation. Psychosomatic illnesses are very well presented.

GROTJAHN

LOW, ABRAHAM A.: *The Historical Development of Recovery's Self-Help Project.* Chicago, Recovery, Inc., 1943, 138 pp.

LOW, ABRAHAM A.: *Group Psychotherapy.* Chicago, Recovery, Inc., 1943, 88 pp.

LOW, ABRAHAM A.: *Lectures to Relatives.* Chicago, Recovery, Inc., 1943, 128 pp.

These three booklets, printed in mimeographed form, contain the history and working methods of Recovery, Inc., the Association of former Mental Patients, verbatim notes on meetings and talks to relatives of State Hospital patients.

GROTJAHN

Rehabilitation of the War Injured. Edited by W. B. Doherty and D. D. Runes. New York, Philosophical Library, Inc., 1943, 684 pp.

There is little on the subject of rehabilitation that is not covered in this book. Fifty-nine authors collaborate to present fifty-three chapters summarizing the entire field. Not only are the technical matters such as plastic surgery of the face and toe transplantations fully described but the equally important problem of vocational rehabilitation and job placement is given adequate treatment. Treatment is certainly inadequate until the patient has been placed in a satisfactory job and been "resocialized." The chapter on psychological reactions to injury is also worthy of mention.

FREEDMAN

RIBBLE, MARGARET A.: *The Rights of Infants.* New York, Columbia University Press, 1943, 118 pp.

In Bali infants have divine rights but in our culture the rights of infants are based on biological necessities. In this book progressive educational ideas are coordinated with biological facts in a skillful and convincing manner.

GROTJAHN

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